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Chapter 1: Should You Use This Workbook?

This workbook is designed to help owners and operators of underground storage tanks (USTs) with the Rules and Regulations For Underground Storage Facilities Used For Petroleum Products and Hazardous Materials, effective October 22, 2002. The workbook describes requirements and best management practices (BMPs) for your USTs, and helps you to determine whether your USTs are in compliance with the regulations.

RI DEM has developed and implemented an Environmental Results Program (ERP). **If you have USTs at your facility that meet the criteria described below, you must read and fill out this workbook. If, after reading this section, the workbook does not apply to you, fill out the non-applicability statement in appendix A and send it to RI DEM.** This will inform RI DEM that you do not have any USTs that fall under this program. If you complete a non-applicability statement, you should not receive a workbook next year.

To determine whether you must read and fill out this workbook:

- Read and answer the three questions below and on the next page.
- Use the information below each question to help you answer the questions.
- Follow the directions in the grey boxes below the questions

| Question 1. Do you have any USTs at your facility? | Yes | No |
|---|-----|----|
| <p>An UST is:</p> <ul style="list-style-type: none"> • underground tank and underground piping. • underground tank and aboveground piping (if at least 10% of the total volume of the tank and piping are underground). • aboveground tank and underground piping (if at least 10% of the total volume of the tank and piping are underground). This scenario is not common. <p>An UST is not an aboveground tank and aboveground piping.</p> | | |
| <ul style="list-style-type: none"> • If you answered yes, continue to question 2 (on the next page). • If you answered no, this workbook does not apply to you. Fill out the non-applicability form in appendix A, and send it to RI DEM. | | |

| Question 2. How many USTs at your facility meet at least one of the following criteria? These are types of USTs that are covered by this workbook. | Number of USTs |
|--|-----------------------|
| <ul style="list-style-type: none"> • contain petroleum products or hazardous substances • Examples: <ul style="list-style-type: none"> • a) contain petroleum or used oil (destined for recycling) at public gasoline stations or repair shops • b) private petroleum tanks used for fueling of business vehicles (for example: bus terminals) • c) stores fuel for use by emergency power generators • d) contain heating oils (fuel oils used for the purpose of producing heat) • holding tanks that serve floor drains or other piping outlets | |
| <ul style="list-style-type: none"> • If you have at least one UST that meets the criteria above, continue to question 3. • If you have no USTs that meet the criteria above, this workbook does not apply to you. Fill out the non-applicability form in appendix A. | |

| Question 3. Of the number of USTs you identified in question 2, how many meet at least one of the following criteria? An UST that meets at least one of the criteria below is an exception to the USTs you identified in question 2 and is not covered by this workbook. If you received this workbook, it would be uncommon for all of your tanks to meet at least one of the criteria below. | Number of USTs |
|--|-----------------------|
| <p>Types and use of tanks</p> <ul style="list-style-type: none"> • hydraulic Lift tanks • storage tanks located entirely within structures, such as a basement or cellar provided that: <ul style="list-style-type: none"> • a) the structure allows for physical access to the storage tank • b) the structure is not part of a secondary enclosure; and • c) the tank is situated upon or above the surface of a concrete floor • septic tanks • pipeline facilities regulated under the Natural Gas Pipeline Safety Act of 1968 or the Hazardous Liquid Pipeline Safety Act of 1979 • flow through process tanks • underground storage tanks storing propane or liquified natural gas • underground storage tanks used for the temporary storage of raw materials or products by industry (so called "Intermittent" or "fill and draw" tanks) • emergency spill protection or overflow tanks • USTs connected to floor drains or other piping outlets which serve residential structures of a one, two, or three family dwelling • oil water separators with a planned discharge required to be regulated under the Clean Water Act • residential tanks less than or equal to 1,100 gallons in capacity used for storing #2 heating oil serving a one, two, or three family dwelling • farm tanks less than 1,100 gallons in capacity and storing #2 heating oil for non-commercial purposes | |

- **If you have no USTs that meet the criteria in question 3**, this workbook applies to you. Begin using this workbook by reading chapter 2.
- **If you have a higher number for your answer to question 2 than your answer to question 3**, this workbook applies to you. Begin using this workbook by reading chapter 2. However, you do not have to include the USTs identified in question 3 when filling out the workbook.
- **If you have the same number for your answer in question 2 and 3**, this workbook does not apply to you. Fill out the non-applicability form in appendix A.

Chapter 2: Introduction

2.1 What is the Purpose of this Workbook?

This workbook is designed to:

- Clearly explain the environmental requirements and best management practices that apply to USTs; and
- Assist owners and operators of regulated USTs in RI to participate in the Environmental Results Program.

2.2 What is the Environmental Results Program?

The Environmental Results Program (ERP) is a common sense approach to achieving environmental protection. It was first developed and used successfully by Massachusetts in 1997. The RI DEM believes that ERP will make it easier for you, UST owners and operators, to understand and comply with UST regulations as well as exceed environmental standards. ERP gives you the information to understand the environmental requirements that pertain to your business while improving accountability to the public for environmental performance.

A typical Environmental Results Program includes:

- a **workbook** which includes best management practices and compliance requirements. The workbook has a direct relation to the certification form mentioned below;
- **workshops** so owners and operators can learn about their responsibilities under ERP;
- a **certification form** that a UST owner and operator is required to complete, sign, and return to RI DEM. On the form the tank owner and operator must certify the current compliance status of the facility and acknowledge that the facility must comply with all applicable environmental laws;
- a **Return to Compliance Plan** which is used for compliance problems identified in the process of filling out the certification form that cannot be corrected at that time. The Return to Compliance Plan describes what steps the facility will take to meet its requirements and when it will return to full compliance; and
- **audits/inspections** to confirm the accuracy of the certifications and compliance with the UST regulations.

2.3 Why Participating in the UST ERP is Important

As an UST owner or operator, you have an important role to play in protecting public health, the environment, as well as your economic investment. If USTs are not operated and maintained properly, they could leak and pollute the environment. ERP is an approach that will help you comply with UST regulations, which will in turn help protect public health, the environment, and your economic investment.

- Public health and the environment

Releases from USTs – spills, overfills, leaking tanks and piping – can contaminate groundwater. Approximately 50 percent of Americans depend on groundwater for water they drink. In addition, leaks can result in fires or explosions, which threaten human safety.

- Economic investment

It is important to quickly detect and report releases, as required by UST regulation. Any product that is lost in a release may cost you in terms of cleanup costs, potential penalties, and the lost revenue of product not sold. By responding quickly and containing a release, you may be able to reduce cleanup cost and environmental damage.

2.4 Your ERP Requirements

You are required to submit an annual Compliance Certification Form to RI DEM (and, if required, a Return to Compliance Form). These forms are included in appendix A and B of this workbook.

If you do not:

- meet the environmental requirements;
- send in the Compliance Certification Form (and, if required, Return to Compliance Forms); or
- give accurate information on your Compliance Certification Form (or, if required, Return to Compliance Form),

you could trigger an inspection that may result in fines or other enforcement action by RI DEM or EPA.

Carefully review this workbook carefully to make sure that you:

- understand the requirements you must meet; and
- accurately fill out the Compliance Certification Form (and the return to compliance forms, if required).

If you have any questions as you go through this Workbook, please refer to Appendix C for other resources or call the RI DEM at 401-222-2797.

2.5 What it Means to Be in Compliance

If you are the owner or operator of one or more UST systems, there are certain things you **MUST** do by law in order to protect human health and the environment. **You are responsible for preventing and quickly detecting releases from your UST systems.** You are also responsible for reporting and cleaning up any releases that occur. You will be held accountable if your UST systems leak. Therefore, you should do everything in your ability to ensure releases do not occur.

To be in compliance means you meet the minimum RI DEM requirements for your UST system. You must meet all environmental requirements for each UST in order to be in compliance¹. The UST requirements include spill, overflow, corrosion protection, release detection, financial responsibility, proper installation, correct operation, maintenance, repair, testing, controlling releases, reporting releases, remediating releases, reporting and record-keeping, temporary closure, and permanent closure.

The Federal UST regulations, 40 Code of Federal Regulations Part 280, are located at:

<http://www.epa.gov/oust/fedlaws/cfr.htm#40cfr280>

The RI DEM UST regulations are located at:

<http://www.state.ri.us/dem/pubs/regs/regs/waste/ust1002.pdf>

¹While this Workbook addresses most RI DEM environmental requirements that apply to underground storage tanks, your facility may need to meet additional requirements that are not covered in this Workbook or in the UST ERP. For example, requirements related to Stage I and Stage II vapor recovery systems, Class V injection wells (motor vehicle waste disposal wells such as a gas station with a service floor drain that leads to a septic system), aboveground storage tanks, hazardous substances, and other requirements may apply to your facility as well. Also, this workbook does not address liability for pollution or spills that may have occurred on your property in the past. If you are unsure whether additional requirements apply to your facility, please call RI DEM at 401-222-2797.

Chapter 3: Getting Started

3.1. The Workbook And Your Responsibilities

The remaining chapters of this workbook contain information to help you understand:

- how to complete the workbook; and
- UST requirements and best management practices.

Chapter 3: Getting Started

This chapter helps you understand how to complete this workbook. You will also begin to gather information about the USTs at your facility. Read this chapter and fill out the table toward the end of this chapter (section 3.4) to identify the USTs at your facility.

Chapter 4: Regulatory Requirements and Best Management Practices at Your Facility

This chapter contains requirements, best managements practices, and checklists to help you determine whether your USTs are in compliance. It contains specific information on:

- Spill Protection
- Correct Filling Practices
- Overfill Protection
- Corrosion Protection for Tanks
- Corrosion Protection for Piping
- Cathodic Protection (for metal tank and piping components)
- Release Detection for Tanks
- Release Detection for Piping
- What to do for Suspected or Confirmed Releases
- Financial Responsibility
- Temporarily Closed USTs
- Keep Your State Agency Informed of New USTs and UST System Changes

Read and fill out the appropriate checklists in this chapter for each UST at your facility. You must evaluate each major topic area listed above.

To further assist you:

- the inside front cover contains a checklist for conducting periodic walkthrough inspections at your facility.
- the inside back cover contains ongoing testing activities that you need to perform at your facility.

3.2 Problems Filling Out the Workbook?

If you have trouble filling out this workbook you can:

- Contact your UST contractor, the vendor of your equipment, environmental compliance consultants, or the manufacturer of your UST equipment. Look through your records for their contact information.
- Contact RI DEM. They may be able to help you identify equipment or sources of information about your UST equipment. Contact RI DEM at: Department of Environmental Management, Office of Waste Management, 235 Promenade Street, Providence, RI 02908, (401) 222-2797.
- Read information from other resources such as state or EPA publications or internet sites. You may also want to use industry internet sites. See Appendix C for some of these additional resources.

3.3 Symbols for Chapter 4

You will see symbols next to some parts of this workbook. The symbols are used to highlight key information. Below are the symbols, and what each means.

| What the Symbols in Chapter 4 Mean | |
|---|---|
|  | Requirement - What you must do by law; things you, an owner or operator must meet to be in compliance with RI regulations |
|  | Best Management Practice - What you should do to help prevent leaks; actions or activities you, an owner or operator, are encouraged to take in order to reduce the potential of leaks |
|  | Important general information - Will provide you information to help you better understand an UST regulatory option. |
|  | Directions - Will tell you how to proceed and help you use this workbook |

3.4. Describe the USTs at Your Facility

Fill out the table below to identify and describe the USTs at your facility. To help you fill out this workbook each UST at your facility will be referred to by a number(1, 2, 3, etc.). **Use this UST number consistently throughout this workbook and on the certification form.**

- The USTs you identify should be those you counted in question 2 in chapter 1.
- Include any kerosene, used oil, and emergency generator USTs.
- The identification number could be:
 - a common identification you use (for example: tank registration number)
- In the “other” column list information that will help further identify each tank such as:
 - the location of the UST at your facility (for example: north, east, southwest, etc.)
 - special features of the UST (for example: the specific compartment of a compartmentalized UST system, the specific tank in a manifolded system)

Unique Circumstances - If you have any of the following characteristics at your facility, read the instructions below. If not begin to fill out the UST identification table below.

- **More than five USTs at your facility covered by this workbook** - Make a copies of the table below. Change the UST numbers on your copy to show your additional tanks (6, 7, 8, etc). Also, copy the appropriate checklists in chapter 4 for these USTs.
- **Compartmentalized tanks** - A compartmentalized tank is one tank that has multiple sections and can contain different products. Each section is called a compartment. If you have a compartmentalized tank, treat each compartment as a separate UST as you complete this workbook.
- **Manifolded tanks** - Manifolded tanks are two or more tanks connected by piping which share the same type of product or fuel. If you have manifolded tanks, treat each manifolded tank as a separate UST as you complete this workbook.
- **Temporarily Closed USTs** - Temporarily closed USTs only have to meet certain requirements. Go to section 4.11 for information about these USTs.

| UST Identification Table | | | | |
|--------------------------|-----------------------|-----------------|----------------|------------------|
| UST Number | Identification Number | Type of Product | Size (Gallons) | Other |
| Example | 00123 | Premium | 10,000 | Southeast corner |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

3.5 How To Complete The Checklists In Chapter 4

Chapter 4 contains information you need to read to understand your environmental requirements. Each section in chapter 4 (sections 4.1 through 4.12) covers a major environmental requirement topic. You must evaluate each of the 12 sections in chapter 4 to understand which aspects apply to your facility. **Do not be intimidated by the size of this workbook, not all parts of the sections in chapter 4 will apply to your facility. You must complete all sections that do apply to your USTs but you do not need to read a section if it does not apply to your USTs.** There will be directions in each of 12 sections about how to proceed through that section.

Each section in chapter 4 contains:

- a table for you to identify the regulatory UST options you have chosen to use at your facility,
- requirements and best management practices for each option, and
- compliance checklists.

Follow the directions in each section of chapter 4 to understand how to proceed through that section. Below are the three steps for filling-out the compliance checklists which will be in each section in chapter 4.

In each section there are three steps to follow when filling out the checklists:

1. Fill out the specific checklists that are appropriate for your facility. There will be directions in each section of chapter 4 to help you determine which checklists are appropriate for your facility. (An example checklist with two questions from the Overfill Alarm Section in the Overfill Protection Section is on the following page.)

For each checklist:

- Determine which USTs at your facility apply to the specific checklist you are working on. Circle the "UST #" at the top of the checklist for USTs at your facility that apply. Circle "N/A" (not applicable) for any USTs that do not apply.
- Answer the questions in the checklist that apply to your USTs. Circle "Y" for yes or "N" for no in the column of each UST that is applicable.

For example, if UST #1 has an ball float valve then you should answer all the questions in the ball float valve checklist in the first column (the UST #1 column). The appropriate response for this tank would be either 1 Y or 1 N which symbolizes UST #1 YES and UST #1 NO.

Checklist for USTs at Your Facility

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| | Circle the appropriate answer | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | |
| 1. Does your UST ever receive more than 25 gallons of product at a time? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If you answered YES for an UST, you must answer the remaining questions in this checklist for that UST.</p> <p>If you answered NO for an UST, circle N/A at the top of the checklist for that UST. You are not required to have an overfill device and do not need to answer any additional questions for that UST. This UST is in compliance with the spill requirements.</p> | | | | | | | | | | |
| 2. Does your ball float valve activate by restricting flow at 90% of tank capacity or 30 minutes prior to overfilling? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a qualified person adjust your ball float valve to the right height so that it restricts flow at 90% of the tank capacity.</p> | | | | | | | | | | |

Some questions require you to complete other sections in this workbook. Make sure you answer all appropriate questions for each UST in each section.

- Complete the summary question at the bottom of the checklist page. This question is a summary for the checklist immediately above it.

For example, if you are in the ball float valve section of the workbook, the summary question after the checklist for ball float valves (seen below) applies only to ball float valves.

| Summary of Compliance with Ball Float Valves | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| <p>1. Are all of your UST systems with ball float valves in compliance with overfill protection?</p> <p>To check yes here, each tank with a ball float valve must meet one of the following:</p> <ul style="list-style-type: none"> a) you answered yes to all questions, or b) you answered no to question 1. | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance.</p> | | |

- Complete the summary question(s) for your facility on the last page of each section. The summary question represents compliance for the facility.

For example, if you check “Yes” for the Summary of Compliance with Overfill Protection checklist below, you are indicating that your entire facility is in compliance with overfill protection.

| Summary of Compliance with Overfill Protection | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are all of your USTs in compliance with overfill protection? To answer YES here, you must be able to answer yes to all applicable questions for each overfill protection device you have. | | |
| If you answered NO , fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix __. | | |

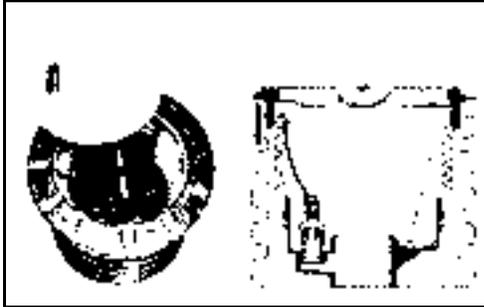
Repeat these three steps for all checklists that are appropriate for your facility.

Now, let’s get started! To begin, turn the page to chapter 4.

Section 4.1: Spill Protection

Information

Spill protection is provided by a spill containment basin (sometimes called a spill bucket or catchment basin) or similar device that is installed at the fill pipe to contain the drips and spills of fuel that can occur when the delivery hose is uncoupled from the fill pipe after delivery.



Sample Spill Bucket/Cross-Section

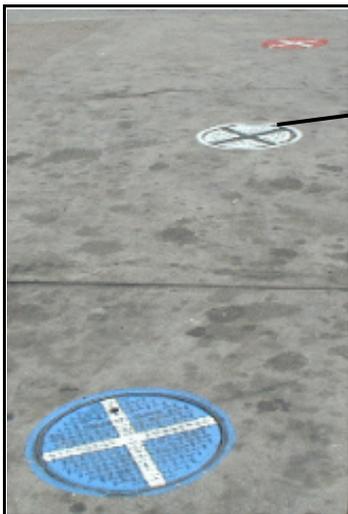
- Spill protection is typically not designed to contain fuel for long periods of time.
- Some spill protection devices are equipped with a drain valve or manual pump that allows you to drain accumulated fuel into your tank. However, keep in mind that when you pump out or drain your spill protection equipment into your tank, water and debris may also enter the tank. If spill protection is not equipped with a drain valve or pump, then any accumulated fuel or water must be removed manually and disposed of properly.

If you know whether you have spill protection skip the information below and turn to the next page. If you don't know whether you have spill protection, do the following:

- Read the information below to help you determine if you have spill protection.
- Look through your old records to see if you have records of spill protection being installed.
- Contact the contractor who installed your underground storage tank.

How to Determine if you have Spill Protection?

Spill protection is containment used at fill pipes to catch small spills that may occur when the delivery hose is disconnected from the fill pipe. Many spill protection devices are also called "spill buckets" or "catchment basins". To determine if you have spill protection, lift each fill port lid and look to see if you have containment around your fill pipe. The spill basin must be capable of holding a minimum 3 gallons.



Sample Fill Area



Sample Spill Protection



Sample Spill Protection

To determine requirements and BMPs for spill protection of your tank(s), do the following:

1. Read the requirements and best management practices below and fill out the checklist on the next page.
2. Once you have completed the questions for spill protection, fill out the question at the bottom of the next page. This question summarizes your compliance with spill protection.

Requirements and Best Management Practices for Spill Protection



Spill protection must prevent the release of product to the environment when the transfer hose is detached from the fill pipe.

- The spill protection cannot meet this requirement if it is not able to contain liquid or if it is full of liquid or solid debris when the tank is being filled.
 - ✓ Periodically check to see if your spill protection will hold liquid. A sample test method to determine if your spill protection will hold liquid is provided in Appendix 6.6.
 - ✓ Periodically inspect your spill protection for signs of wear, cracks, or holes.
 - ✓ Make sure your spill protection is empty of liquid and debris before and after each delivery.

Checklist for Spill Protection

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Does your UST have spill protection? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If you answered YES for an UST, you must answer the remaining questions in this checklist for that UST.</p> <p>If no, then to return to compliance: Have spill protection (such as a spill bucket) properly installed.</p> | | | | | | | | | | | |
| 2. Will your spill protection prevent the release of product to the environment when the transfer hose is detached from the fill pipe?(spill bucket is free of liquid) | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have your spill protection emptied, repaired or replaced so that it will prevent a release to the environment when the transfer hose is detached from the fill pipe.</p> | | | | | | | | | | | |

| Summary of Compliance with Spill Protection | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are all of your USTs in compliance with spill protection? To check yes here, you must have answered yes to all questions above. | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix ____.</p> <p style="text-align: center;">(Transcribe this answer to question ____ of the Compliance Certification form)</p> | | |

Section 4.2: Correct Filling Practices



As an owner or operator, you are responsible for any releases that occur due to spilling or overfilling during fuel delivery.

- You must make sure that the amount of product to be delivered will fit into the available empty space in the tank.
- You must make sure that the transfer operation is monitored constantly to prevent overfilling and spilling.



A good management practice that will help you meet the correct filling practices requirements is to follow the checklist below each time you have fuel delivered. The checklist describes important activities before, during, and after a fuel delivery.

| Suggested Correct Filling Practices Checklist | |
|--|--|
| What To Do Before Your Tanks Are Filled | <p>Determine and record accurate readings for product and water in the tank before fuel delivery. Order only the quantity of fuel that will fit into 90% of the tank. REMEMBER, the formula for determining the maximum amount of gasoline to order is:</p> <p>(Tank capacity in gallons X 90%) — gallons of product currently in tank = maximum amount of fuel to order</p> <p>Example: (10,000 gal X 0.9) — 2,000 gal = 7,000 gal maximum amount to order</p> <p>Make sure fuel delivery personnel know the type of overfill device present at the tank and what actions to perform if it activates. For example, use the sample sign in Appendix G. Review and understand the spill response procedures. Verify that your spill bucket is empty, clean, and will contain spills.</p> |
| What To Do While Your Tanks Are Being Filled | <p>Keep fill ports locked until the fuel delivery person requests access. Have an accurate tank capacity chart available for the fuel delivery person. The fuel delivery person makes all hook-ups. The person responsible for monitoring the delivery should remain attentive and observe the entire fuel delivery, be prepared to stop the flow of fuel from the truck to the tank at any time, and respond to any unusual condition, leak, or spill which may occur during delivery. Have response supplies readily available for use in case a spill or overfill occurs. Provide safety barriers around the fueling zone. Make sure there is adequate lighting around the fueling zone.</p> |
| What To Do After Your Tanks Are Filled | <p>Following complete delivery, the fuel delivery person is responsible for disconnecting all hook-ups. Return spill response kit and safety barriers to proper storage locations. Determine and record accurate readings for product and water in the tank after fuel delivery. Verify the amount of fuel received. Make sure fill ports are properly secured. Make sure the spill bucket is free of product and clean up any small spills.</p> |

Checklist for Requirements for Correct Filling Practices

| ANSWER THE FOLLOWING QUESTIONS: | YES | NO |
|--|-----|----|
| 1. Do you have procedures that ensure the amount of fuel to be delivered will fit into the tank for each delivery at your facility? | | |
| If no, then to return to compliance: Make sure that the amount of fuel to be delivered will fit into the tank it is being placed into. Make sure you do this for each delivery. | | |
| 2. Do you have procedures to ensure that each delivery is monitored constantly to prevent overfilling and spilling? | | |
| If no, then to return to compliance: Put procedures in place to ensure that each delivery is monitored constantly to prevent overfilling and spilling. | | |

| Summary of Compliance with Correct Filling Practices | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are you in compliance with all correct filling practices? If you answered yes to all applicable questions above, you are in compliance with correct filling practices. | | |
| If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B. | | |

(Transcribe this answer to question ___ of the Compliance Certification form)

Section 4.3: Overfill Protection

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have overfill protection.



Overfill protection is equipment installed on the UST to help prevent your tanks from being overfilled during fuel delivery. Overfill protection is designed to stop product flow, reduce product flow, or alert the delivery person during delivery **before** the tank becomes full and begins releasing petroleum into the environment.

There are three common types of overfill protection:

- overfill alarms
- ball float valves
- automatic shutoff devices

To determine requirements and BMPs for overfill protection of your UST(s), do the following:

1. Identify the type(s) of overfill protection you have for each UST. Check the appropriate boxes in the table on the next page.

Different tanks at your facility may have different types of overfill protection. Make sure to select the appropriate type of overfill protection for each tank at your facility.

One or more tanks at your facility may have two or more types of overfill protection. It is recommended that for the purposes of determining your compliance, you choose only the type of overfill protection you are using to comply with the overfill protection portion of the UST regulations. If you choose multiple types of overfill protection for a single tank, then you need to meet the requirements for each type of overfill protection you checked for that tank. If you do not do this you may appear to be out of compliance when you may actually be in compliance.

2. For each type of overfill protection you checked, go to the section of this workbook listed in the right column of the table. Read the requirements and best management practices and fill out the appropriate checklist(s) in that section. You may need to go to more than one checklist – each overfill protection type has a separate checklist.
3. Once you have completed the checklists for your overfill protection type(s), turn to the last page of this section and complete the checklist that summarizes your compliance with overfill protection.

| What Type(s) Of Overfill Protection Do You Have for Each Tank at Your Facility? | UST Number: | | | | | Go to these sections for information and compliance checklists |
|---|-------------|---|---|---|---|--|
| | 1 | 2 | 3 | 4 | 5 | |
| Overfill Alarm | | | | | | Section 4.3.1 |
| Automatic Shutoff Device | | | | | | Section 4.3.2 |
| Ball Float Valve | | | | | | Section 4.3.3 |
| No Overfill Protection | | | | | | Section 4.3.4 |

If you know the type(s) of overfill protection you have, skip the descriptions below and proceed as instructed in the table above. Otherwise, take the following steps to figure out what is at your facility:

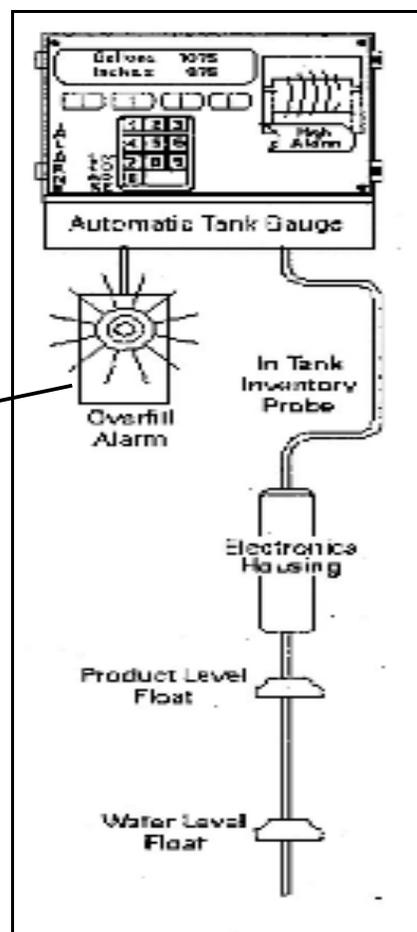
- Read the information below to help determine your type(s) of overfill protection.
- Look through your old records to see if your records about overfill protection help you.
- Contact the contractor who installed your underground storage tank.

Descriptions of the Different Types of Overfill Protection

Overfill Alarms - This type of overfill protection has a sensor located in the tank. It is typically connected to a monitoring device such as an automatic tank gauge, and provides an audible and/or visual warning to the delivery person when the tank is close to being full.



Sample Overfill Alarm



Sample Schematic for an Overfill Alarm

Automatic Shutoff Devices - This type of overfill protection is a mechanical device located at the fill pipe of your tank. Look down your fill pipe to see part of this device. It will be similar to the picture below. You will see what appears to be a line cutting through your fill pipe (or a half moon shape in your fill pipe).

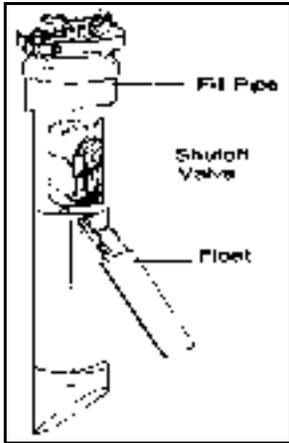
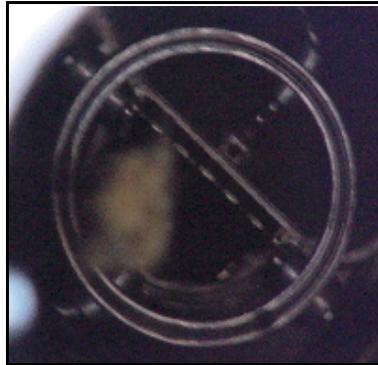


Diagram of an Automatic Shutoff Device

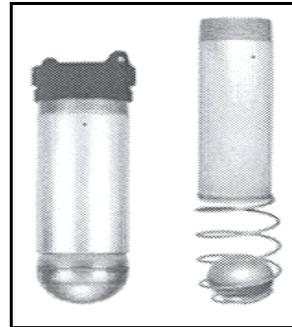


Looking Down a Fill Pipe at an Automatic Shutoff Device



Looking Through the End of Automatic Shutoff Device

Ball Float Valves - You might find it difficult to determine whether or not you have this type of overfill protection because it is located inside the tank where the vent line exits the tank. You might be able to find an extractor port for the ball float valve (see picture below). Otherwise, you will need to look through your installation paperwork or call your contractor to determine whether your tank has this type of overfill protection.



Sample Ball Float Valves



Sample Ball Float Valve



Sample Extractor Port



Closeup of Extractor Port

4.3.1 Overfill Alarms



Overfill alarms send an audible and/or visual warning to the delivery person (also called the transfer operator) to warn him to stop delivery because the product is approaching the tank capacity. After the alarm, the delivery person has approximately one minute to stop the flow of fuel to the tank.

Requirements and Best Management Practices for Overfill Alarms



You must have overfill protection (for example, an overfill alarm) for every UST filled with more than 25 gallons of product at a time.



The overfill alarm must activate when the product in the tank reaches 90% of the tank capacity or is within one minute of being overfilled.



The overfill alarm must be located so it can be seen and/or heard at the UST delivery location. This ensures the delivery person will be alerted when the tank is almost full.



A qualified UST contractor should periodically check your overfill alarm to make sure it is functioning properly and the overfill alarm activates at 90% of the tank capacity or at least one minute before being overfilled.



You should educate and alert your delivery person you have an overfill alarm.

- One way is to place a sign near each fill pipe (in clear view of the delivery person) saying there is an overfill alarm for that tank, what occurs when it activates, and the necessary actions to take when it activates. Make sure your sign is durable. See the sample sign in Appendix G.

Overfill Protection Checklist for USTs with Overfill Alarms

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Questions | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| | Circle the appropriate answer | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | |
| 1. Does your UST ever receive more than 25 gallons of product at a time? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If you answered YES for an UST, you must answer the remaining questions in this checklist for that UST.</p> <p>If you answered NO for an UST, circle N/A at the top of the checklist for that UST. You are not required to have an overfill device and you are not required to answer any additional questions for that UST in this checklist. This UST is in compliance with the overfill requirements.</p> | | | | | | | | | | |
| 2. Does your overfill alarm activate at 90% of tank capacity or at least one minute before being overfilled? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a qualified person adjust your overfill device to the right height.</p> | | | | | | | | | | |
| 3. Can your overfill alarm be seen and/or heard from the delivery location so it will alert the delivery person that the tank is almost full? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a qualified person fix your overfill alarm so that it can be heard and/or seen from the delivery location.</p> | | | | | | | | | | |

| Summary of Compliance with Overfill Alarms | | |
|--|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| <p>1. Are all of your UST systems with an overfill alarm in compliance with overfill protection?</p> <p>To check yes here, each tank with an overfill alarm must meet one of the following:</p> <p style="margin-left: 20px;">a) you answered yes to all questions, or</p> <p style="margin-left: 20px;">b) you answered no to question 1 in the table above.</p> | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance.</p> | | |

4.3.2 Automatic Shutoff Devices



The automatic shutoff device slows down and then stops the delivery when the product has reached a certain level in the tank by shutting off the flow of fuel to the UST.

Requirements and Best Management Practices for Automatic Shutoff Devices



You must have overfill protection (for example, an automatic shutoff device) for every UST that is filled with more than 25 gallons of product at a time.



Automatic shutoff devices must activate when the product in the tank reaches 95% of the tank capacity or before the fittings at the top of the tank are exposed to fuel.

- There must not be any object in the fill pipe that would keep the shutoff mechanism from activating.
- The automatic shutoff device must be positioned so that the float arm is not blocked and can move through its full range of motion.



A qualified UST contractor should periodically check your automatic shutoff device to make sure that it is functioning properly and that the automatic shutoff device activates at 95% of the tank capacity or before the fittings at the top of the tank are exposed to fuel.



You should educate and alert your delivery person that you have an automatic shutoff device.

- For example, you could place a sign near each fill pipe (in clear view of the delivery person) specifying that you have an automatic shutoff device for that tank, what occurs when it activates, and the necessary actions to take when it activates. Make sure your sign is durable. An example sign is provided in Appendix G.



Automatic shutoff devices should not be used if your tank receives pressurized deliveries because it might result in dangerous situations.

Overfill Protection Checklist for USTs with Automatic Shutoff Devices

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | |
|---|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| | Circle the appropriate answer | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | |
| 1. Does your UST ever receive more than 25 gallons of product at a time? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If you answered YES for an UST, you must answer the remaining questions in this checklist for that UST.</p> <p>If you answered NO for an UST, circle N/A at the top of the checklist for that UST. You are not required to have an overfill device and do not need to answer any additional questions for that UST. This UST is in compliance with the spill requirements.</p> | | | | | | | | | | |
| 2. Does your automatic shutoff device properly activate at 95% of tank capacity or before the fittings at the top of the tank are exposed to fuel? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a qualified person adjust your automatic shutoff device to properly activate at 95% of the tank capacity or before the fittings at the top of the tank are exposed to fuel.</p> | | | | | | | | | | |

| Summary of Compliance with Automatic Shutoff Devices | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| <p>1. Are all of your UST systems with automatic shutoff devices in compliance with overfill protection?</p> <p>To check yes here, each tank with an automatic shutoff device must meet one of the following:</p> <ul style="list-style-type: none"> a) you answered yes to all questions, or b) you answered no to question 1. | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance.</p> | | |

4.3.3 Tanks with Ball Float Valves (also called Float Vent Valves)



The ball float valve is installed at the vent line in the tank and restricts vapor flow in an UST as the tank gets close to being full. As the tank fills, the ball in the valve rises, restricting the flow of vapors out of the UST during delivery. The flow rate of the delivery will decrease noticeably and should alert the delivery person to stop the delivery.

Requirements and Best Management Practices for Ball Float Valves



You must have overfill protection (for example, a ball float valve) for every UST that is filled with more than 25 gallons of product at a time.



Ball float valves must activate by restricting fuel flowing into the tank when the product in the tank reaches 90% of the tank capacity or at least 30 minutes before the tank will be overfilled. For ball float valves to work properly:

- the air hole in the ball float valve must not be plugged,
- the ball cage must be intact,
- the ball must move freely in the cage,
- the ball must seal tightly on the pipe, and
- the top of the tank must be air tight during delivery so that vapors cannot escape from the tank. Everything from other tank access ports to fittings to drain mechanisms on spill buckets must be tight and be able to hold the pressure created when the ball float valve engages.



A qualified UST contractor should periodically check your ball float valve to make sure that it is functioning properly and that the ball float valve activates at 90% of the tank capacity or at least 30 minutes before the tank will be overfilled.



You should educate and alert your delivery person that you have a ball float valve.

- For example, you could place a sign near each fill pipe (in clear view of the delivery person) specifying that you have a ball float valve for that tank, what occurs when it activates, and the necessary actions to take when it activates. Make sure your sign is durable. An example sign is provided in Appendix G.



You should not use a ball float valve for overfill protection if any of the following apply because overfills or dangerous situations (for example pressure could build up in the tank and result in gasoline spraying out into the environment or onto the delivery person) may occur.

- Your UST system receives pressurized deliveries (see Appendix E for the definition of pressurized deliveries)
- Your UST system has suction piping (see section 4.7.2.3 for information on suction piping)
- Your UST system has coaxial stage I vapor recovery (see Appendix E for definition of Stage I Vapor Recovery)

Overfill Protection Checklist for USTs with Ball Float Valves

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Does your UST ever receive more than 25 gallons of product at a time? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If you answered YES for an UST, you must answer the remaining questions in this checklist for that UST.</p> <p>If you answered NO for an UST, circle N/A at the top of the checklist for that UST. You are not required to have an overfill device and do not need to answer any additional questions for that UST. This UST is in compliance with the spill requirements.</p> | | | | | | | | | | | |
| 2. Does your ball float valve activate by restricting flow at 90% of tank capacity or at least 30 minutes prior to overfilling? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a qualified person adjust your ball float valve to the right height so that it restricts flow at 90% of the tank capacity.</p> | | | | | | | | | | | |

| Summary of Compliance with Ball Float Valves | | |
|---|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| <p>1. Are all of your UST systems with ball float valves in compliance with overfill protection?</p> <p>To check yes here, each tank with a ball float valve must meet one of the following:</p> <ul style="list-style-type: none"> a) you answered yes to all questions, or b) you answered no to question 1. | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance.</p> | | |

4.3.4 No Overfill Protection

Requirements and Best Management Practices for USTs with No Overfill Protection



Only an UST that is **never** filled with more than 25 gallons of product at a time is not required to have overfill protection. **You must have overfill protection for every UST that is filled with more than 25 gallons of product at a time.**



You should consider using overfill protection for USTs that never receive deliveries of more than 25 gallons of product at a time as part of good UST system management because even small spills can be extremely costly.

USTs Without Overfill Protection

| | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Does each UST system <u>without</u> overfill protection only receive product in amounts of 25 gallons or less? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Have a qualified person properly install an overfill protection device. | | | | | | | | | | | |

| Summary of Compliance for USTs with No Overfill Protection | | | | | | | | |
|--|------------------|------------------|-------|-------|-------|-------|--|--|
| ANSWER THE FOLLOWING QUESTION: | YES | NO | | | | | | |
| <p>1. Are all of your UST systems with no overfill protection in compliance?</p> <p>To answer yes here, you must be able to answer yes to all applicable questions above.</p> <p>List all tanks that don't have overfill protection.</p> <table style="width: 100%; border: none;"> <tr> <td style="border: none; padding: 5px;"><u>Tank ID</u></td> <td style="border: none; padding: 5px;"><u>Substance</u></td> </tr> <tr> <td style="border: none; padding: 5px;">_____</td> <td style="border: none; padding: 5px;">_____</td> </tr> <tr> <td style="border: none; padding: 5px;">_____</td> <td style="border: none; padding: 5px;">_____</td> </tr> </table> | <u>Tank ID</u> | <u>Substance</u> | _____ | _____ | _____ | _____ | | |
| <u>Tank ID</u> | <u>Substance</u> | | | | | | | |
| _____ | _____ | | | | | | | |
| _____ | _____ | | | | | | | |
| If you answered no , fill out a return to compliance plan and submit it with your certification of compliance. | | | | | | | | |

Summary of Compliance with Overfill Protection

Make sure you read and complete the checklists in the appropriate overfill protection sections for all of your USTs before answering the question below.

| Summary of Compliance with Overfill Protection | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are all of your USTs in compliance with overfill protection? To answer YES here, you must be able to answer yes to all applicable questions for each overfill protection device you have. | | |
| If you answered NO , fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B. | | |

(Transcribe this answer to question _ of the Compliance Certification form)

Section 4.4: Corrosion Protection for Tanks

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have corrosion protection



All of your regulated tanks that are underground and routinely contain product must be protected from corrosion.

You can protect your underground tank from corrosion in several ways. Your tank may be:

- a tank made of a non-corrodible material (such as fiberglass),
- a steel tank that is coated and cathodically protected,
- a steel tank jacketed or clad with a non-corrodible material, or
- a steel tank that is cathodically protected and/or internally lined.

Internal lining and cathodic protection require periodic operation and maintenance.



All of your underground tanks that were installed after May 8, 1985 need to meet all appropriate construction standards and be installed according to a standard code of practice and the manufacturer's instructions.



Keep all paperwork related to your corrosion protected tanks (examples include paperwork related to: installation, cathodic protection, integrity assessment, repair, and internal lining).

To determine requirements and BMPs for corrosion protection of your tank(s), do the following:

1. Identify the type(s) of tank(s) at your facility. Check the appropriate boxes in the table on the next page.
Note: If you have compartmentalized tank(s), treat each compartment as a separate UST. If you have manifolded tanks, treat each tank as a separate UST.
2. For each type of tank you checked, go to the section of this workbook listed in the right column of the table. Read the requirements and best management practices and fill out the appropriate checklist(s) in that section. You may need to go to more than one checklist – each tank type has a separate checklist.
3. Once you have completed the checklists for each tank type, turn to the last page of this section and complete the checklist that summarizes your compliance with tank corrosion protection.

| What Type(s) Of Underground Tank(s) Do You Have at Your Facility? | UST Number: | | | | | Go to these sections for information and compliance checklists |
|---|-------------|---|---|---|---|--|
| | 1 | 2 | 3 | 4 | 5 | |
| Fiberglass Reinforced Plastic (FRP) Tank | | | | | | Section 4.4.1 |
| Jacketed Steel Tank | | | | | | Section 4.4.1 |
| Clad Steel Tank | | | | | | Section 4.4.1 |
| Coated and Cathodically Protected Steel Tank | | | | | | Section 4.4.2 |
| Cathodically Protected Steel Tank | | | | | | Section 4.4.3 |
| Internally Lined Steel Tank | | | | | | Section 4.4.4 |
| Internally Lined and Cathodically Protected Steel Tank | | | | | | Section 4.4.5 |
| Steel Tank with No Additional Corrosion Protection | | | | | | Section 4.4.6 |

Note: If your tank type is not listed above, contact RI DEM to determine what you must do.

If you know the type(s) of tanks you have, skip the description information below and proceed as instructed in the table above. Otherwise, take the following steps to figure out what is at your facility:

- Read the descriptions below of the different tank types.
- Look through your old records to see if they match any of the names in the descriptions.
- Contact the contractor who installed your underground storage tank.

Tank Type Descriptions

Fiberglass Reinforced Plastic (FRP) Tank - This tank is made of fiberglass reinforced plastic. Examples of current and past FRP tank makers include Owens Corning, Xerxes, Cardinal, Fluid Containment, and Containment Solutions.

Jacketed Steel Tank - This is a steel tank that is encapsulated (or “jacketed”) in a non-corrodible, nonmetallic material such as fiberglass or polyethylene. There is a space between the steel wall and the jacket material. This space may be monitored for a breach of either the inner or outer wall. Examples of jacketed tank brands include: Permatank[®], Glasteel II[®], Titan[®], Total Containment[®], and Elutron[®].

Clad Steel Tank - This tank is a steel tank that has a thick layer of non-corrodible material such as fiberglass or urethane that is mechanically bonded (clad) to the outer wall of the steel tank. This cladding helps protect the outer part of the steel wall from corroding. Examples of clad tank brands include: ACT-100[®], ACT-100-U[®], Glasteel[®], and Plasteel[®].

Coated and Cathodically Protected Steel Tank - This is a steel tank that has both an external coating and cathodic protection. An example of a coated and cathodically protected tank brand is the sti-P₃[®] tank. This type of tank is usually installed with galvanic (sacrificial) anodes for cathodic protection. However, these tanks may have an impressed current cathodic protection system if the galvanic (sacrificial) anodes no longer protected the tank from corrosion. If you are not sure whether you have a cathodic protection system, the information in the “determining if you have cathodic protection” section on the next page may help you.

Cathodically Protected Steel Tank - This is a steel tank without an external coating that has a cathodic protection system. Typically, this type of tank was originally installed as a bare steel tank before May 8, 1985 and had cathodic protection installed at some later date. Usually this type of tank will have an impressed current cathodic protection system. If you are not sure whether you have a cathodic protection system, the information in the “determining if you have cathodic protection” section below may help you.

Internally-Lined Steel Tank - This is a steel tank with an internal lining installed. Typically, this type of tank was originally installed as a bare steel tank before May 8, 1985 and had an internal lining installed at some later date.

Internally Lined and Cathodically Protected Steel Tank - This is a steel tank that has both an internal lining and cathodic protection. Typically, this type of tank was originally installed as a bare steel tank before May 8, 1985 and had cathodic protection and internal lining installed at some later date. Usually this type of tank will have an impressed current cathodic protection system. If you are not sure whether you have a cathodic protection system, the information in the “determining if you have cathodic protection” section below may help you.

Steel Tank with NO Additional Corrosion Protection - This is a steel tank that does not have cathodic protection, an internal lining, or any non-corrodible material that encapsulates or is bonded to the outside of the tank.

Determining If You Have Cathodic Protection - There are two types of cathodic protection systems commonly used to protect your steel tank from corrosion - impressed current and galvanic (sacrificial) anodes.



Sample Rectifier

Impressed current system - If you have an impressed current system you will have a rectifier (a device for converting alternating current into direct current) located somewhere at your facility.



Sample Rectifier

Galvanic (sacrificial) anode system - It is more difficult to tell if you have this type of cathodic protection system because the anodes are buried and attached to the tank. You cannot see them and there is no rectifier. Look at any installation paperwork you have or contact the contractor who installed the tank or cathodic protection system to try to determine if you have a galvanic (sacrificial) anode system. For example, a sti-P₃[®] tank commonly uses a galvanic (sacrificial) anode system.

4.4.1: Fiberglass Reinforced Plastic (FRP) Tanks, Jacketed Steel Tanks, and Clad Steel Tanks



Fiberglass Reinforced Plastic (FRP) tanks, jacketed steel tanks, and clad steel tanks meet the corrosion protection requirements without additional equipment or operation and maintenance.

Requirements and Best Management Practices for Fiberglass Reinforced Plastic (FRP) Tanks



Have your fiberglass reinforced plastic (FRP) tanks periodically checked for deflection (deflection is a measure of the roundness of your tank). Since these tanks are made from materials considered to be brittle, deflection may result in cracking or catastrophic failure. Contact the maker of your fiberglass reinforced plastic (FRP) tank for information on deflection testing.

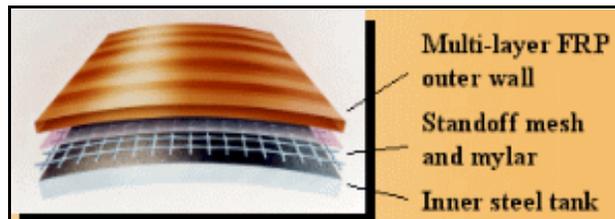


Sample FRP Tank

Requirements and Best Management Practices for Jacketed Steel Tanks



Have your jacketed steel tanks periodically tested by a qualified contractor to make sure the space between the steel tank and non-corrodible material is tight. This space is known as the interstitial space or secondary containment area. If your primary tank wall were to have a leak and the secondary containment space was not tight, a release could get into the environment and result in cleanup activity that could be costly and time-consuming.

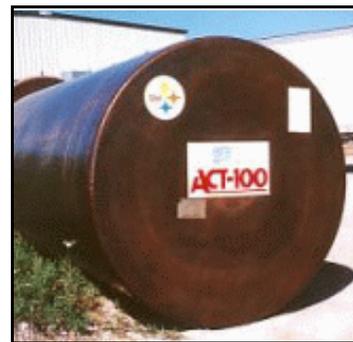


Sample Piece of a Jacketed Tank

Requirements and Best Management Practices for Clad Steel Tanks



If you have clad steel tanks that have cathodic protection then you should have your cathodic protection system tested periodically to make sure that it is operating properly. Section 4.6 on cathodic protection describes procedures for operating and maintaining your cathodic protection.



Sample Clad Tank

Corrosion Protection Checklist for Fiberglass Reinforced Plastic (FRP) Tanks, Jacketed Steel Tanks, and Clad Steel Tanks

| | | | | | | |
|--|-------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| <p>Circle the UST numbers for USTs that are clad steel tanks, jacketed steel tanks, or fiberglass reinforced plastic (FRP) tanks.</p> | <p align="center">UST # =</p> | <p align="center">1</p> | <p align="center">2</p> | <p align="center">3</p> | <p align="center">4</p> | <p align="center">5</p> |
| <p>There are no corrosion protection questions for fiberglass reinforced plastic (FRP) tanks, jacketed steel tanks, and clad steel tanks.</p> | | | | | | |
| <p>Fiberglass reinforced plastic (FRP) tanks, jacketed steel tanks, and clad steel tanks are in compliance with corrosion protection requirements.</p> | | | | | | |

| <p align="center">Summary of Compliance with Corrosion Protection for FRP Underground Tanks</p> | | |
|---|---------------------------|--------------------------|
| <p>Answer the following question:</p> | <p align="center">Yes</p> | <p align="center">No</p> |
| <p>1. Are your Fiberglass Reinforced Plastic (FRP) Tanks, Jacketed Steel Tanks, and Clad Steel Tanks in compliance with the corrosion protection requirements?</p> | | |

4.4.2: Coated and Cathodically Protected Steel Tanks

Requirements and Best Management Practices for Coated and Cathodically Protected Steel Tanks



The coating is on the outside of the tank and must be made of a suitable dielectric material (a material that isolates the tank from the surrounding soil and does not conduct electricity). For example, an sti-P3[®] tank is the most common type of steel tank that is coated and cathodically protected.



You must comply with specific testing and record keeping requirements for cathodic protection. Descriptions of cathodic protection, requirements and best management practices, and checklists for cathodic protection are in section 4.6. **Before completing the checklist on the next page, you will need to read the cathodic protection section and fill out the checklists in that section.**



Sample Coated and Cathodically Protected Tank

**Corrosion Protection Checklist
for Coated and Cathodically Protected Steel Tanks**

| | | | | | | | | | | |
|--|------------|--------|-------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Circle the UST numbers for USTs that are coated and cathodically protected steel tanks. Fill out the questions below for these tanks. | UST # = | | 1 | 2 | 3 | 4 | 5 | | | |
| | QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | |
| | | | Circle the appropriate answer | | | | | | | |
| | | | Yes (Y) or No (N) | | | | | | | |
| 1. Is your tank coated with a suitable dielectric material? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | |
| 2. Do you meet the requirements for your cathodic protection system? To answer "Yes" here, you must be in compliance with all cathodic protection requirements in section 4.6. Complete the cathodic protection system checklist in section 4.6. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist." | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Coated and Cathodically Protected Underground Tanks | | |
|--|-----|----|
| Answer the following question: | Yes | No |
| 1. Do your coated and cathodically protected underground tanks meet corrosion protection requirements? If you answered yes to all applicable questions above, you are in compliance with the coated and cathodically protected tank requirements. If you answered no , fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.4.3: Cathodically Protected Steel Tanks

Requirements and Best Management Practices for Cathodically Protected Steel Tanks



For any steel tank that uses cathodic protection without a dielectric coating for corrosion protection, installation of that UST system must have begun on or before May 8, 1985. If you have a coated and cathodically protected steel tank, go to section 4.4.2.



An integrity assessment of the tank must have been conducted before adding cathodic protection. RI DEM requires that the tank be internally inspected by a trained professional who enters the tank to determine if it is structurally sound and free of corrosion holes.



A code of practice must be followed when adding cathodic protection to your tank, and prior written notification to and approval by RI DEM is required..



You must comply with specific testing and record keeping requirements for cathodic protection. Descriptions of cathodic protection, requirements and best management practices, and checklists for cathodic protection are in section 4.6. **Before completing the checklist on the next page, you will need to read the cathodic protection section and fill out the checklists in that section.**



Keep records of your integrity assessment and cathodic protection installation. These records may be useful in determining whether your tank is in compliance with the corrosion protection requirements.

Corrosion Protection Checklist for Cathodically Protected Steel Tanks

| Circle the UST numbers for USTs that are cathodically protected steel tanks. Fill out the questions below for these tanks. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | | Circle the appropriate answer | | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | | |
| 1. Did the installation for this UST system begin on or before May 8, 1985? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Any tank where installation began after May 8, 1985 that is cathodically protected but not coated does not meet the corrosion protection requirements. Contact YOUR STATE UST AGENCY to determine how you may return to compliance. | | | | | | | | | | | |
| 2. Did this UST system pass an integrity assessment? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |
| 3. Do you meet the requirements for your cathodic protection system? To answer "Yes" here, you must be in compliance with all cathodic protection requirements in section 4.6. Complete the cathodic protection system checklist in section 4.6. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist." | | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Cathodically Protected Underground Tanks | | |
|---|-----|----|
| Answer the following question: | Yes | No |
| 1. Do your cathodically protected underground tanks meet corrosion protection requirements? If you answered yes to all applicable questions above, you are in compliance with the cathodically protected tank requirements. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.4.4: Internally Lined Steel Tanks

Requirements and Best Management Practices for Internally Lined Steel Tanks



For any steel tank that uses internal lining for corrosion protection, installation of that UST system must have begun on or before May 8, 1985.



If any repairs are performed when your tank is internally-lined, you must keep all records of those repairs for the life of the tank.



A code of practice must be followed when adding an interior lining to your tank, and prior written notification to and approval by RI DEM is required.



Within 10 years of lining, lined tanks must be internally inspected by a qualified contractor and found to be structurally sound with the lining still performing in accordance with original design specifications. After the initial 10 year inspection, these inspections must be conducted at least every 5 years.



Keep records of your lining installation and lining inspections. These records may be useful in determining whether your tank is in compliance with the corrosion protection requirements.



Even though a tank that has internal lining is not required to have external corrosion protection, you should consider adding external corrosion protection (such as cathodic protection) as part of good UST system management.



Sample of a Tank being Interior Lined

Corrosion Protection Checklist for Internally Lined Steel Tanks

| Insert the date of your lining installation for each tank below the appropriate UST # (mm/dd/yy) | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| Note: Circle the UST numbers for USTs that are internally lined steel tanks. Fill out the questions below for these tanks. | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Did the installation for this UST system begin on or before May 8, 1985? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Any tank where installation began after May 8, 1985 that is using internal lining alone does not meet the corrosion protection requirements. Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |
| 2. Do you have all records of repairs for your lined tank? If your lined tank has never been repaired, then you will not have any repair records - answer YES to this question. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact the inspector or repair company that worked on your tank lining. Secure a record of any repairs you have had completed on your lined tank. | | | | | | | | | | | |
| 3a. Do you have your lined tank periodically inspected? Inspections are required within 10 years of installation and then every 5 years thereafter. If your tank was internally lined less than 10 years ago, this question does not yet apply - skip this question. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| 3b. What is the date of your most recent lined tank inspection? | | | | | | | | | | | |
| If no, then to return to compliance: Have a lining inspection conducted on your lined tank. | | | | | | | | | | | |
| 4. Did your lined tank pass its most recent periodic inspection? If your tank was internally lined less than 10 years ago, this question does not yet apply - skip this question. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Internally-Lined Underground Tanks | | |
|---|-----|----|
| Answer the following question: | Yes | No |
| 1. Do your internally-lined underground tanks meet corrosion protection requirements? If you answered yes to all applicable questions above, you are in compliance with the internally-lined tank requirements. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.4.5: Internally-Lined and Cathodically Protected Steel Tanks

Requirements and Best Management Practices for Internally-Lined and Cathodically Protected Steel Tanks



For any steel tank that uses an internal lining and cathodic protection without a dielectric coating (see section 4.4.2 for information about coated and cathodically protected steel tanks) for corrosion protection, installation of the UST system must have begun on or before May 8, 1985.



When you combine the use of internal lining and cathodic protection, you must meet specific testing and record keeping requirements for cathodic protection, which are in section 4.6. **Before completing the checklist on the next page, you will need to read the cathodic protection section (4.6) and fill out the checklists in that section.**



You must also meet the lining requirements in section 4.4.4. **Before completing the checklist on the next page, you will need to read the internally lined steel tank section (4.4.4) and fill out the checklist in that section.**

There is one exception which relates to questions 3 and 4 of the checklist in section 4.4.4:

- If the integrity of the steel tank was ensured prior to adding cathodic protection, you do not have to have the periodic inspections of the lined tank conducted. The method of integrity assessment is provided in section 4.4.3. Note that the integrity assessment needs to be able to determine that the steel tank shell is structurally sound and free of corrosion holes.



Have your internal lining checked periodically even if the inspections are not required.



Keep records of your lining and cathodic protection installations. These records may be useful in determining whether your tank is in compliance with the corrosion protection requirements.

**Corrosion Protection Checklist
for Internally-Lined and Cathodically Protected Steel Tanks**

| | | | | | | | | | | |
|--|------------|--------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Circle the UST numbers for USTs that are internally-lined and cathodically protected. Fill out the questions below for these tanks. | UST # = | | 1 | 2 | 3 | 4 | 5 | | | |
| | QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | |
| | | | Circle the appropriate answer | | | | | | | |
| | | | Yes (Y) or No (N) | | | | | | | |
| 1. Do you meet the requirements for your cathodic protection system? To answer "yes" here, you must be in compliance with all cathodic protection requirements in section 4.6. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist" | | | | | | | | | | |
| 2. Did this UST system pass an integrity assessment at the time cathodic protection was added? Note: information about the integrity assessment is in section 4.4.3. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If yes, then answer question 4 for that UST system (skip question 3). If no, then answer question 3 for that UST system (skip question 4). | | | | | | | | | | |
| 3. Do you meet the lining requirements in section 4.4.4? If you answered yes to all applicable questions in section 4.4.4 for an UST system then you meet the lining requirements can answer yes here for that UST system. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to meet the requirements described in section 4.4.4. | | | | | | | | | | |
| 4. Do you meet the lining requirements for the first two questions in section 4.4.4? If you answered yes to the first two questions in section 4.4.4 for an UST system then you meet the lining requirements and can answer yes here for that UST system. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to meet the requirements described in section 4.4.4. | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Cathodically Protected and Internally-Lined Steel Tanks | | |
|---|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Do your cathodically protected and internally-lined underground tanks meet corrosion protection requirements? If you answered yes to questions 1 and 3, <u>or</u> questions 1 and 4, you are in compliance with the internally-lined and cathodically protected tank requirements. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.4.6: Steel Tanks With No Additional Corrosion Protection



In general, steel tanks with no additional corrosion protection are not allowed under RI DEM underground storage tank regulations. However, USTs storing heating oil of any grade that is consumed on-site solely for heating purposes are exempt from this requirement.



If you have a regulated underground steel tank without additional corrosion protection, you must notify RI DEM immediately and submit a permanent closure application to permanently remove the UST from service.

Note: It is not common to have a steel tank without additional corrosion protection.

Summary of Compliance with Tank Corrosion Protection

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have corrosion protection

Make sure you read and complete the checklists in the appropriate tank corrosion protection sections for all of your USTs before answering the question below.

| ANSWER THE FOLLOWING QUESTION: | YES | NO | | | | | | |
|--|------------------|------------------|-------|-------|-------|-------|--|--|
| <p>1. Do all of your underground tanks meet corrosion protection requirements? To answer YES here, you must be able to answer yes to all applicable questions for each type of tank at your facility.</p> <p>List tanks that don't meet corrosion protection requirement.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; padding: 2px;"><u>Tank ID</u></th> <th style="text-align: left; border-bottom: 1px solid black; padding: 2px;"><u>Substance</u></th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black; padding: 2px;">_____</td> <td style="border-bottom: 1px solid black; padding: 2px;">_____</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 2px;">_____</td> <td style="border-bottom: 1px solid black; padding: 2px;">_____</td> </tr> </tbody> </table> | <u>Tank ID</u> | <u>Substance</u> | _____ | _____ | _____ | _____ | | |
| <u>Tank ID</u> | <u>Substance</u> | | | | | | | |
| _____ | _____ | | | | | | | |
| _____ | _____ | | | | | | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B.</p> | | | | | | | | |

(Transcribe this answer to question __ of the Compliance Certification form)

Section 4.5: Corrosion Protection for Piping

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have corrosion protection for piping.



All of your regulated piping that is in contact with the ground and routinely contains product must be protected from corrosion – **note that this piping is often underground or buried.**

You can protect this piping from corrosion in several ways. It may be:

- made of a non-corrodible material (such as fiberglass or flexible plastic),
- made of steel and coated and cathodically protected, or
- made of metal and cathodically protected (this option is only allowed for older piping – installed on or before May 8, 1985).

Cathodic protection requires periodic operation and maintenance.



All of your piping that is in contact with the ground and routinely contains product that was installed after May 8, 1985 needs to meet all appropriate construction standards and be installed according to a standard code of practice and the manufacturer's instructions.



Keep all paperwork related to your corrosion protected piping (examples include paperwork related to: installation, cathodic protection, and repair).

To determine requirements and BMPs for corrosion protection of your piping, do the following:

1. Identify the type(s) of piping that are in contact with the ground and routinely contain regulated substances for each UST. Check the appropriate boxes in the table on the next page.

Note: A piping run may consist of different types of piping. Make sure that you select ALL types of piping associated with each UST.

2. For each type of piping you checked, go to the section of this workbook listed in the right column of the table. Read the requirements and best management practices and fill out the appropriate checklist(s) in that section. You may need to go to more than one checklist - each piping type has a separate checklist.
3. Once you have completed the checklists for each piping type, turn to the last page of this section and complete the checklist that summarizes your compliance with piping corrosion protection.

| What Type(s) Of Piping Do You Have that are in Contact with the Ground and Routinely Contains Regulated Substances? | UST Number: | | | | | Go to these sections for information and compliance checklists |
|---|-------------|---|---|---|---|--|
| | 1 | 2 | 3 | 4 | 5 | |
| Fiberglass Reinforced Plastic (FRP) Piping | | | | | | Section 4.5.1 |
| Coated and Cathodically Protected Steel Piping | | | | | | Section 4.5.2 |
| Cathodically Protected Metal Piping | | | | | | Section 4.5.3 |
| Metal Piping with No Additional Corrosion Protection | | | | | | Section 4.5.4 |
| Flexible Plastic Piping | | | | | | Section 4.5.1 |
| No Piping in Contact with the Ground | | | | | | No Requirements |

Note: If your piping type is not listed above, contact RI DEM to determine what you must do.

If you know the type(s) of piping you have, skip the description information below and proceed to the sections as instructed in the table above. Otherwise, take the following steps to figure out what is at your facility:

- Read the descriptions of the different piping types below.
- Look under your dispenser and in the sump on top of your tank to see if you can identify the piping. Note that some piping may have metal flexible connectors in these areas. These connectors are only at the ends of the piping and typically do not make up the entire piping run.
- Look through your old records to see if they match any of the names in the descriptions.
- Contact the contractor who installed your piping.

Piping Type Descriptions

Fiberglass Reinforced Plastic (FRP) Piping - This piping is nonmetal and is made of fiberglass reinforced plastic. It is a rigid piping (it is not flexible). Examples of FRP piping makers include Ameron and Smith Fiberglass Products Inc. This piping type may also have metal connectors associated with it.



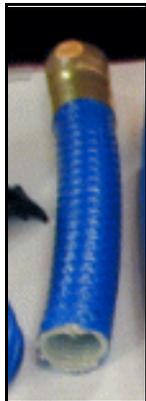
Sample FRP Piping

Coated and Cathodically Protected Steel Piping - This is steel piping that has both an external coating and cathodic protection. If you are not sure whether you have a cathodic protection system, the information in the “determining if you have cathodic protection” section on the next page may help you.

Cathodically Protected Metal Piping - This is metal piping without an external coating that has a cathodic protection system. Typically, this type of piping was originally installed as a bare metal before May 8, 1985 and had cathodic protection installed at some later date. If you are not sure whether you have a cathodic protection system, the information in the “determining if you have cathodic protection” section on the next page may help you.

Metal Piping with NO Additional Corrosion Protection - This is metal piping that does not have any additional corrosion protection (for example, no cathodic protection).

Flexible Plastic Piping - This type of piping is made of plastic that is flexible. Examples of nonmetal flexible piping brand names include: Poly-Tech, EnviroFlex, GeoFlex, Perma-Flexx, Omniflex, Pisces, and Co-Flex™. This piping type may also have metal connectors associated with it.



Sample Flexible Piping



Sample Flexible Piping



Sample Flexible Piping



Sample Flexible Piping in a Sump



Closeup of Flexible Piping in a Sump

Determining If You Have Cathodic Protection - There are two types of cathodic protection systems commonly used to protect your metal piping from corrosion - impressed current and galvanic (sacrificial) anodes.

Impressed current system - If you have an impressed current system you will have a rectifier (a device for converting alternating current into direct current) located somewhere at your facility. Sample pictures of rectifiers are provided in section 4.4.

Galvanic (sacrificial) anode system - It is more difficult to tell if you have this type of cathodic protection system because the anodes are buried and attached to the piping. You cannot see them and there is no rectifier. Look at any installation paperwork you have or contact the contractor who installed the piping or cathodic protection system to try to determine if you have a galvanic (sacrificial) anode system.

4.5.1: Fiberglass Reinforced Plastic (FRP) Piping and Flexible Plastic Piping



Fiberglass Reinforced Plastic (FRP) Piping and Flexible Plastic Piping types are made of a non-corrodible materials and both meet the corrosion protection requirements without additional equipment or operation and maintenance. However, you may have metal joints and connections associated with these types of piping that are in contact with the ground and routinely contain regulated substances. These components must be protected from corrosion.

Requirements and Best Management Practices for Fiberglass Reinforced Plastic (FRP) Piping and Flexible Plastic Piping



Any metal piping components associated with these types of piping that are in contact with the ground and routinely contain regulated substances, such as turbine pump heads, metal flexible connectors, and metal swing joints must be protected from corrosion by one of the following:

- Effectively isolating the metal connector from direct contact with the ground (for example: by booting the connector or by moving the soil so that it is not in contact with the metal component).
- Cathodically protecting metal components in contact with the ground. If you cathodically protect the metal component, you must meet the cathodic protection requirements in section 4.6. Before completing the checklist on the next page, you will need to read the cathodic protection section and fill out the checklists in that section.

Corrosion Protection System Checklist for Fiberglass Reinforced Plastic (FRP) Piping and Flexible Plastic Piping

| | | | | | | | | | | |
|---|---------------|--------------------------|--------------------------------------|----------|----------|----------|----------|---|---|---|
| QUESTIONS: | UST# = | | 1 | 2 | 3 | 4 | 5 | | | |
| | | | N/A | N/A | N/A | N/A | N/A | | | |
| | | | Circle the appropriate answer | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | |
| <p>1. Are all of your metal piping components associated with your fiberglass reinforced plastic (FRP) piping or flexible plastic piping effectively isolated from the soil (for example they may be booted or not in contact with the ground). If you have no metal piping components, answer Yes to this question.</p> <p>For each UST for which you answered no to this question, proceed to question 2 and answer that question. For each UST for which you answered Yes to this question, skip questions 2 and 3. That UST is in compliance with piping corrosion protection.</p> | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>2. Are all of your metal components associated with your fiberglass reinforced plastic (FRP) piping or flexible plastic piping that are in contact with the ground and routinely contain regulated substances cathodically protected?</p> <p>If you answered no to both questions 1 and 2 for a given UST, then to return to compliance: Have your metal piping components effectively isolated from the soil, cathodically protected, or have the soil removed such that they are no longer in contact with the ground.</p> | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>3. Do you meet the requirements for your cathodic protection system? Fill out the cathodic protection compliance checklist in section 4.6 to make this determination.</p> <p>Answer this question if you have cathodic protection on your metal piping components.</p> <p>If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist."</p> | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |

Summary of Compliance with Corrosion Protection for Fiberglass Reinforced Plastic (FRP) and Flexible Plastic Piping

| ANSWER THE FOLLOWING QUESTION: | YES | NO |
|---|-----|----|
| <p>1. Does your fiberglass reinforced (FRP) piping or flexible plastic piping (and any associated metal components) that is in contact with the ground and routinely contains regulated substances meet corrosion protection requirements?</p> <p>To answer yes here, you must have answered yes to either question 1 or questions 2 and 3 above for each UST system at your facility.</p> <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance.</p> | | |

4.5.2: Coated and Cathodically Protected Steel Piping



All buried steel piping that is installed after May 8, 1985 must be coated and cathodically protected. Make sure that metal piping components such as pump heads, flexible connectors and swing joints are either effectively isolated from the soil or are cathodically protected.

Requirements and Best Management Practices for Coated and Cathodically Protected Steel Piping



The coating is on the outside of the piping and must be made of a suitable dielectric material (a material that isolates the piping from the surrounding soil and does not conduct electricity).



You must comply with specific testing and record keeping requirements for cathodic protection. Descriptions of cathodic protection, requirements and best management practices, and checklists for cathodic protection are in section 4.6. **Before completing the checklist on the next page, you will need to read the cathodic protection section and fill out the checklists in that section.**

Corrosion Protection System Checklist for Coated and Cathodically Protected Steel Piping

| | | | | | | | | | | |
|---|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Circle the UST numbers for USTs that have coated and cathodically protected steel piping. Fill out the questions below for this piping. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | |
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | |
| | | Circle the appropriate answer | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | |
| 1. Is your piping coated with a suitable dielectric material? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | |
| 2. Are all of your steel piping and metal components that are in contact with the ground and routinely contain regulated substances cathodically protected? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | |
| 3. Do you meet the requirements for your cathodic protection system? Fill out the cathodic protection compliance checklist in section 4.6 to make this determination. | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist." | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Coated and Cathodically Protected Steel Piping | | |
|---|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Does your coated and cathodically protected piping that is in contact with the ground and routinely contains regulated substances meet corrosion protection requirements? If you answered yes to all applicable questions above, you are in compliance with the piping corrosion protection requirements for coated and cathodically protected steel piping. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.5.3: Cathodically Protected Metal Piping



All buried metal piping must have been installed on or before May 8, 1985 and must be cathodically protected. Make sure that metal piping components such as pump heads, flexible connectors and swing joints are either effectively isolated from the soil or are cathodically protected.

Requirements and Best Management Practices for Cathodically Protected Metal Piping



For any metal piping in contact with the ground that uses cathodic protection without any coating for corrosion protection, installation of that UST must have begun on or before May 8, 1985. [If you have a coated and cathodically protected steel piping run, go to section 4.5.2.]



You must comply with specific testing and record keeping requirements for cathodic protection. Descriptions of cathodic protection, requirements and best management practices, and checklists for cathodic protection are in section 4.6. **Before completing the checklist on the next page, you will need to read the cathodic protection section and fill out the checklists in that section.**



Keep records of your cathodic protection installation. These records may be useful in determining whether your piping is in compliance with the corrosion protection requirements.

Corrosion Protection System Checklist for Cathodically Protected Metal Piping

| Circle the UST numbers for USTs that have cathodically protected metal piping. Fill out the questions below for this piping. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | | Circle the appropriate answer | | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | | |
| 1. Did the installation for this UST system begin on or before May 8, 1985? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Any metal piping that is in contact with the ground where installation began after May 8, 1985 that is not coated with a suitable dielectric material does not meet the corrosion protection requirements. Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |
| 2. Are all of your metal piping and metal components that are in contact with the ground and routinely contain regulated substances cathodically protected? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |
| 3. Do you meet the requirements for your cathodic protection system? To answer "Yes" here, you must be in compliance with all cathodic protection requirements in Section 4.6. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You must take action to comply with the requirements in section 4.6, "Cathodic Protection System Checklist." | | | | | | | | | | | |

| Summary of Compliance with Corrosion Protection for Cathodically Protected Metal Piping | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Does your cathodically protected metal piping that is in contact with the ground and routinely contains regulated substances meet corrosion protection requirements? If you answered yes to all applicable questions above, you are in compliance with the piping corrosion protection requirements for cathodically protected metal piping. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. | | |

4.5.4: Metal Piping - No Additional Corrosion Protection

If your UST contains heating oil you are not required to have corrosion protection



Metal piping with no additional corrosion protection that is in contact with the ground and routinely contains regulated substances is not allowed under RI DEM underground storage tank regulations. However, piping for USTs storing heating oil that is consumed on-site solely for heating purposes is exempted from this requirement.



If you have a regulated metal piping without additional corrosion protection that is in contact with the ground, you must notify RI DEM immediately and submit a proposal to either replace the piping or permanently close the UST.

Note: It is not common to have metal piping without additional corrosion protection.

Summary of Compliance with Piping Corrosion Protection

If your UST contains heating oil you are not required to have corrosion protection

Make sure you read and complete the checklists in the appropriate corrosion protection for piping sections for all of your piping that is in contact with the ground and routinely contains regulated substances before answering the question below.

| Summary of Compliance with Piping Corrosion Protection | | | | | | | | |
|--|-----------|-----------|--|--|--|--|--|--|
| ANSWER THE FOLLOWING QUESTION: | YES | NO | | | | | | |
| <p>1. Does all of your piping that is in contact with the ground and routinely contains regulated substances meet corrosion protection requirements?</p> <p>To answer YES here, you must be able to answer yes to all applicable questions for each type of piping at your facility.</p> <p>List all of your tanks that have piping that does not meet the corrosion protection requirement.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; width: 20%;">Tank ID</th> <th style="text-align: left; border-bottom: 1px solid black; width: 60%;">Substance</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> </tbody> </table> | Tank ID | Substance | | | | | | |
| Tank ID | Substance | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| <p>If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B.</p> | | | | | | | | |

(Transcribe this answer to question __ of the Compliance Certification form)

Section 4.6: Cathodic Protection

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have cathodic protection.



Cathodic protection is one option for meeting the corrosion protection requirements of metal UST components that are in contact with the ground and routinely contain regulated substances. These components are often buried. Components of your UST that may have cathodic protection include: metal tanks, piping, and ancillary equipment such as turbine pump heads, flexible connectors, and swing joints.

There are two types of cathodic protection used for underground storage tank systems. They are: (1) impressed current, and (2) galvanic (or sacrificial) anodes. These cathodic protection types are briefly described on the next page.

To determine if your UST system components are in compliance with the cathodic protection requirements, follow these steps.

1. Read this section for descriptions of the types of cathodic protection commonly used on tanks and piping and requirements and best management practices for cathodic protection.
2. Complete the checklist for cathodic protection for each UST that has cathodic protection at your facility. **If a tank and its associated piping have multiple cathodic protection systems, note that information on the top of the checklist and fill out the checklist for that UST system.** Fill out the checklist for that UST just once (include overall compliance for both cathodic protection systems).

For example, there may be a UST system that has a metal tank with impressed current cathodic protection and fiberglass piping with a buried metal flexible connector that has an anode. The reader would fill out the checklist as show below.

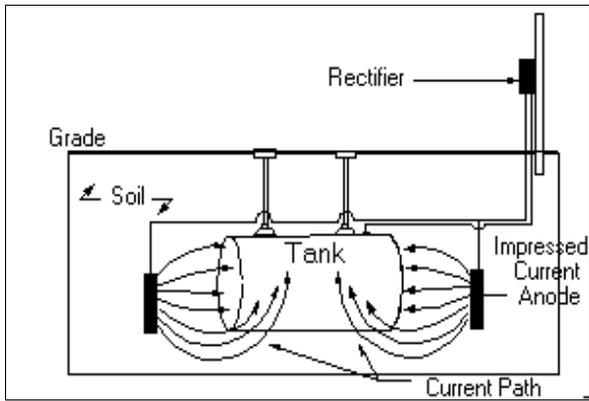
| | UST # |
|---|---------|
| 1. What type of cathodic protection system do you have for the tank of this UST? (In the space provided, enter: IC for impressed current, GAL for galvanic, BOTH for both impressed current and galvanic anodes) | 1 IC |
| 2. What type of cathodic protection system do you have for the piping of this UST? (In the space provided, enter: IC for impressed current, GAL for galvanic, BOTH for both impressed current and galvanic anodes) | GAL |

3. Once you have completed the checklist for each UST, go to the last question of this section and complete the “Summary of Compliance with Cathodic Protection.” This is the answer that you will use for sections 4.4 and 4.5.

Impressed Current Systems

An impressed current system uses a rectifier (a device for converting alternating current into direct current) to provide direct current through anodes to the metal tank, piping, or other underground components to achieve corrosion protection. The diagram below illustrates impressed current cathodic protection.

How to tell if you have an impressed current system: You should have a rectifier located somewhere at your facility. Impressed current cathodic protection systems are typically installed in the field.



Sample Impressed Current System Diagram



Example Rectifier

Galvanic (or Sacrificial) Anode Systems

A galvanic (or sacrificial) anode system uses anodes that are buried and attached to metal UST components for corrosion protection. The anode is more electrically active and will sacrifice itself (corrode) to protect the metal component from corrosion. A sample picture of an anode attached to a tank is shown on the right.

How to tell if you have a galvanic anode system: It is more difficult to tell if you have a galvanic anode system because you typically cannot see the anodes and there is no rectifier. The anodes are attached to the underground component they are protecting and are buried. These anodes are usually installed on tanks in at the factory (such as on the sti-P3[®] tank) and can be installed on piping and other underground metal components in the field. Ways to help you determine whether you have a galvanic system are to look at any installation paperwork you might have or to contact the contractor who installed the cathodic protection system.



Sample Galvanic (or sacrificial) anode

Requirements and Best Management Practices for Cathodic Protection



Your cathodic protection system must operate continuously to protect the metal components of your UST system in direct contact with the ground.

- If your cathodic protection system is disconnected or turned off, your underground UST components are not protected from corrosion.
 - Never turn off your rectifier.
 - Never disconnect a galvanic anode.
- Note that contractors may have to turn off or disconnect your cathodic protection for short periods during repairs.



All cathodic protection systems that are installed in the field must be designed by a corrosion expert. Field installed means that the cathodic protection system was not installed on the tank when the tank or piping was in the factory. An example of a tank that has a factory installed cathodic protection system is the sti-P3[®] tank.

A **corrosion expert** must meet specific qualifications. That person must be either:

1. Certified by NACE as a Corrosion Specialist or Cathodic Protection Specialist, or
2. A registered Professional Engineer that has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.



A code of practice must be followed when adding a cathodic protection system to your UST system.



You must have your cathodic protection system tested by a qualified cathodic protection tester within 6 months of installation and then at least every 2 years for an impressed system, and every 3 years for a sacrificial anode system. In addition, if you have any repairs conducted to your cathodically protected UST, or if any maintenance or construction in the area of the structure occurs, you must have a cathodic protection test conducted within 6 months of that repair.

- You must keep all records of the operation, repair, and testing of the cathodic protection system for 3 years beyond the operational life of the facility. A sample cathodic protection test record is provided for you in Appendix H.
- If your cathodic protection system does not pass the test, have your cathodic protection system evaluated and fixed by a corrosion expert.

A **cathodic protection tester** is a person who can demonstrate an understanding of the principles of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems.



If you have an impressed current cathodic protection system, you must inspect the rectifier at least every 60 days to make sure that it is on and operating properly.

- You must keep all records of these checks for 3 years beyond the operational life of the facility. A sample impressed current inspection record keeping form is provided for you in Appendix I.
- If your rectifier is not operating within the normal values, contact a corrosion expert to evaluate and fix your cathodic protection system.

The person who installed your impressed current system should have provided you with paperwork to indicate what the normal operating voltage and amperage values are for your cathodic protection system. If you do not have values for the normal operating voltage and amperage, contact the person who installed the system and obtain that information. Record the amperage and voltage readings and compare them to the normal operating values during each inspection.

- ✓ Keep all paperwork related to your cathodic protection system.
- ✓ Have cathodic protection tests conducted more frequently. The more often you have these tests conducted, the more likely you are to detect cathodic protection problems before releases occur.
- ✓ Perform inspections of your rectifier more frequently than the 60 day requirement. The more often you inspect the rectifier, the quicker you can detect problems with your cathodic protection system.

Cathodic Protection System Checklist

| Circle the UST numbers that have cathodic protection and answer the questions below. | UST # = | 1 | 2 | 3 | 4 | 5 |
|---|---------|--------------------------------------|-----|-----|-----|-----|
| <p>Note: If your buried tank and piping components do not have cathodic protection then circle N/A (not applicable) for that UST. You do not need to answer questions for that UST.</p> <p style="text-align: center;">QUESTIONS</p> | | N/A | N/A | N/A | N/A | N/A |
| | | Circle the appropriate answer | | | | |
| | | Yes (Y) or No (N) | | | | |
| <p>1. What type of cathodic protection system do you have for the tank of this UST? (In the space provided, enter: IC for impressed current, GAL for galvanic, BOTH for both impressed current and galvanic anodes)</p> | | | | | | |
| <p>2. What type of cathodic protection system do you have for the piping of this UST? (In the space provided, enter: IC for impressed current, GAL for galvanic, BOTH for both impressed current and galvanic anodes)</p> | | | | | | |
| <p>3. Enter the date or dates of installation for your cathodic protection system (mm/dd/yy).</p> | | | | | | |

| Circle the UST numbers that have cathodic protection and answer the questions below. | UST # = | | 1 | 2 | 3 | 4 | 5 | | | |
|--|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Note: If your buried tank and piping components do not have cathodic protection then circle N/A (not applicable) for that UST. You do not need to answer questions for that UST. | | | N/A | N/A | N/A | N/A | N/A | | |
| QUESTIONS | | Circle the appropriate answer | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | |
| 4. Does your cathodic protection system operate continuously? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| Answer yes here if you never disconnect your galvanic (sacrificial) anodes and you never turn off your rectifier or if the only time this occurs is for short periods when a contractor works on your cathodic protection system. | | | | | | | | | | |
| If no, then to return to compliance: Contact RI DEM to determine how to return to compliance. | | | | | | | | | | |
| 5. Was your cathodic protection system either designed by a corrosion expert or installed at the factory? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: 1. Have a corrosion expert evaluate your existing cathodic protection system. 2. If the design is not adequate, take the necessary steps to have your cathodic protection fixed. 3. Keep a record of the evaluation and repairs. 4. Contact RI DEM to determine any further actions necessary to return to compliance. | | | | | | | | | | |
| 6. Did you have your cathodic protection system tested within six months of installation, at least every 2 years for an impressed current system, or 3 years for a sacrificial anode system, and within six months following any repairs to your cathodically protected UST, or within 6 months of any maintenance or construction in the area of the UST? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Have a cathodic protection test conducted by a qualified cathodic protection tester as soon as possible. Contact RI DEM to determine any further actions necessary to return to compliance. | | | | | | | | | | |
| 7. Do you have records of your cathodic protection tests? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| Answer yes here if one of the following apply: 1. you have records of all cathodic protection tests as described in this section. 2. You have no records and your cathodic protection system was installed less than 6 months ago. | | | | | | | | | | |
| Enter the date of your most recent test (mm/dd/yy). | | | | | | | | | | |
| If no, then to return to compliance: Contact the person who performed your cathodic protection tests and obtain records of your cathodic protection testing. | | | | | | | | | | |
| 8. Did your most recent cathodic protection test pass? | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Have a corrosion expert evaluate your cathodic protection system and fix any problems as soon as possible. Also have a cathodic protection test conducted within 6 months of the repair and make sure the cathodic protection system passes the test. | | | | | | | | | | |

| Circle the UST numbers that have cathodic protection and answer the questions below. | UST # = | | 1 | 2 | 3 | 4 | 5 | | | |
|---|--|-----|---|-----|-----|-----|-----|-----|---|---|
| | <p>Note: If your buried tank and piping components do not have cathodic protection then circle N/A (not applicable) for that UST. You do not need to answer questions for that UST.</p> <p style="text-align: center;">QUESTIONS</p> | N/A | | N/A | N/A | N/A | N/A | N/A | | |
| Circle the appropriate answer | | | | | | | | | | |
| Yes (Y) or No (N) | | | | | | | | | | |
| Questions 9 - 11 are for cathodic protection systems with rectifiers only (Impressed Current Systems). Skip these questions if you only have galvanic (sacrificial) anodes. | | | | | | | | | | |
| 9. Do you inspect your rectifier at least every 60 days? | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>If no, then to return to compliance: Begin inspecting your rectifier at least every 60 days by recording amperage and voltage readings on your rectifier and comparing those readings with the normal operating values.</p> | | | | | | | | | | |
| 10. Do you have records of your rectifier inspections? | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>Answer yes here if one of the following apply:</p> <ol style="list-style-type: none"> You have records of all the rectifier inspections that are required as described in this section. You have at least 2 records and your cathodic protection system was installed less than 6 months ago. You have at least 1 record and your cathodic protection system was installed less than 4 months ago. You have no records yet and your cathodic protection system was installed less than 2 months ago. | | | | | | | | | | |
| Enter the date of your most recent inspection (mm/dd/yy). | | | | | | | | | | |
| <p>If no, then to return to compliance: Begin keeping records of your rectifier inspection.</p> | | | | | | | | | | |
| 11. Did your most recent cathodic protection inspection results fall within the amperage and voltage ranges established by the corrosion expert? | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>If you do not have voltage and amperage ranges established by the corrosion expert, call the person who installed your cathodic protection system and get those values.</p> | | | | | | | | | | |
| <p>If no, then to return to compliance: Have a corrosion expert evaluate your cathodic protection system and fix any problems as soon as possible. Also have a cathodic protection test conducted within 6 months of the repair and make sure the cathodic protection system passes the test.</p> | | | | | | | | | | |

| Summary of Compliance with Cathodic Protection | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|
| 1. Does your cathodic protection system meet the requirements for cathodic protection? | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 |
| | Y | N | Y | N | Y | N | Y | N | Y | N |
| <p>To answer yes here, you must be able to answer yes to all applicable questions above for each UST.</p> <p>Transcribe these answers to the appropriate checklists in sections 4.4. and 4.5 of the workbook.</p> | | | | | | | | | | |
| <p>If you answered no for any cathodic protection system, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B.</p> | | | | | | | | | | |

Section 4.7: Leak Detection for Tanks

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have leak detection.



Leak detection (also called release detection) requirements for your tanks are:

For tanks with secondary containment (double-walled tanks):

1. Continuous interstitial monitoring, and
2. Inventory Control (using an ATG or manual tank gauging)

For single-walled tanks:

1. Automatic Tank Gauging, and
2. Tightness Testing, and
3. Inventory Control

Exceptions:

Automatic Tank Gauging not required for tanks upgraded by lining or cathodic protection for the first 10 years after the upgrade.

Inventory Control not required for diesel emergency generator and waste oil tanks

All leak monitoring devices shall not be shut off or deactivated at any time except for repair, and any deactivation must be reported to RIDEM. All monitoring devices shall employ an audible alarm and a visual indicator, which shall be located as to be heard and seen by the owner/operator or other personnel during normal working hours.

General Requirements and Best Management Practices for ALL Tank Leak Detection Methods



You are required to test and conduct system checks on your leak detection equipment.

The following tests are required to be conducted **Annually**

- Automatic Tank Gauge System Test
- Continuous Interstitial Monitoring System Test
- Tank Tightness Testing

The following tests/checks are required to be conducted **Monthly**

- Automatic Tank Gauge System Check to ensure it is operating effectively
- Automatic Tank Gauge System Leak Test
- Reconcile your Inventory

You are required to record your Inventory **Daily**.



Your release detection must be installed, calibrated, operated, and maintained according to the manufacturer's instructions.

The following information/documentation must be kept for 3 years beyond the life of the facility:

annual leak detection device test results
tank tightness test results
all repair documentation

The following must be kept for 3 years:

maintenance records, inventory records
strip chart and manual recordings for continuous monitoring
results of all monthly system checks
shear valve annual checks



If you ever suspect or confirm a release, you must take appropriate action and, if necessary, report the release. Refer to section 4.9 for information on what to do. **Never ignore leak detection alarms or failed leak detection tests. Treat them as suspected leaks!**



If you have hazardous substance tanks (as defined under CERCLA), you must have double-walled tanks and use interstitial monitoring for release detection unless you have obtained a waiver from RI DEM.



Keep all schedules of required calibration and maintenance provided by the equipment manufacturer.



Periodically have a qualified UST contractor, such as the vendor, who installed your release detection system, service all the system components according to the manufacturer's service instructions.

- Components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least once annually.



Make sure your vendor or installer provides you with the information and training necessary to make sure your release detection equipment works effectively to detect leaks. If you don't know how your system works, you will fail inspections and may find yourself with violations and penalties. Or even worse, you may find too late that you have had a leak and you may now have to pay for extensive cleanup of a contaminated site and for damages caused to others. It is your responsibility to know how to operate all your release detection devices properly so that you meet regulatory requirements and protect the environment.



Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems. Develop and maintain regular training programs for all employees.

To determine requirements and BMPs for release detection of your tank(s), do the following:

1. Identify the type(s) of release detection you use for your tanks. Check the appropriate boxes in the table below.

Different tanks at your facility may use different types of leak detection. Make sure to select the appropriate type of leak detection for each tank at your facility.

You may have more than one type of leak detection for a tank at your facility. For the purposes of determining your compliance, you should check only the method(s) of leak detection you are using to comply with the release detection for tanks portion of the UST regulations. If you use multiple types of leak detection for a single tank, then you need to meet the requirements for each type of release detection you checked.

2. For each type of leak detection you checked, go to the appropriate section and read and fill out the appropriate checklist(s). You may need to go to more than one checklist – each leak detection type has a separate checklist.
3. Once you have completed the checklists for tank leak detection, turn to the last page of this section and complete the checklist that summarizes your compliance with tank release detection.

If you have an UST that contains a hazardous substance (one common example is antifreeze) check the last row of the table below for that UST.

| What Type(s) Leak Detection Do You Use for Your Tank(s)? | | | | | | Go to these sections for information and compliance checklists |
|---|---|---|---|---|---|--|
| UST Number: | 1 | 2 | 3 | 4 | 5 | |
| Automatic Tank Gauging (ATG) | | | | | | Section 4.7.1 |
| Interstitial Monitoring for Double- Walled Tanks | | | | | | Section 4.7.2 |
| Tank Tightness testing | | | | | | Section 4.7.3 |
| Inventory Control | | | | | | Section 4.7.4 |
| Check here if your tank contains a hazardous substance | | | | | | Section 4.7.2 |

If your tank leak detection type is not listed above, contact RI DEM to determine what you must do.

If you know the type(s) of leak detection you have, skip the description information below and proceed as instructed in the table above. Otherwise, take the following steps to figure out what is at your facility:

- Read the descriptions below of the different tank leak detection types.
- Look through your old records to see if they match any of the names in the descriptions.
- Contact the contractor who installed your leak detection system.

Leak Detection Descriptions

Automatic Tank Gauging (ATG) - An ATG system consists of a probe permanently installed in a tank and wired to a monitor to provide information such as product level and temperature. You should have an ATG monitor mounted somewhere at your facility. ATG systems automatically calculate the changes in product volume that can indicate a leaking tank and can be set to alarm when there is a suspected problem with your tank.



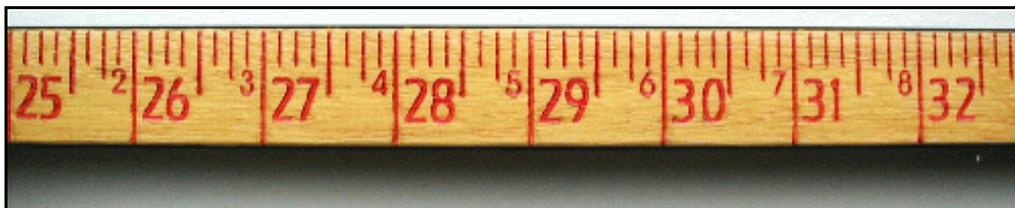
Sample ATG Monitor



Sample ATG Monitor

Double-Walled Tanks with Interstitial Monitoring- Secondary containment is an additional barrier between the portion of an UST system that contains product and the outside environment. Secondary containment is provided by the outer tank wall of a double-walled system. **Hazardous substance tanks must be double-walled with interstitial monitoring or you must obtain a waiver from RI DEM.** The area between the inner and outer barriers is called the interstitial space or annular space. You must have interstitial monitoring ports on the pavement at your facility. Electronic probes in the interstitial space are connected to and monitored by electronic equipment (such as an automatic tank gauge).

Inventory Control - This method involves measuring the contents of the tank and recording of the amount of product pumped each day and reconciling that data with measurements and records of product delivery. Typically, a measuring stick or an ATG is used to take the measurements.



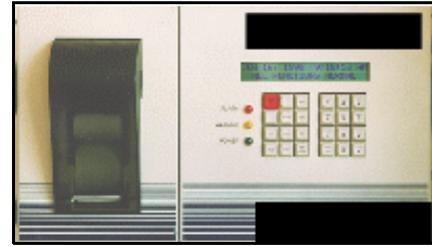
Sample Part of a Measuring Stick

Tank Tightness Testing - This is a tank testing method that is capable of determining whether or not an underground storage tank, line or system is leaking as defined by NFPA 329, "Handling Releases of Flammable and Combustible Liquids and Gases". The test is capable of accurately detecting a tank or a tank and line leak of 0.1 gallons per hour, adjusted for all variables, with a probability of detection of no less than 95 percent and a probability of false detection of no more than 5 percent. The test method must be approved by the RI DEM prior to use, follow the manufacturers protocol, and be conducted by persons who are licensed by RIDEM.

4.7.1: Automatic Tank Gauging (ATG)



ATG systems automatically calculate the changes in product volume that can indicate a leaking tank.



Sample ATG

Requirements and Best Management Practices for Automatic Tank Gauging (ATG) Systems



LEAK DETECTION TEST

You are required to use your ATG system to test for leaks at least once every **Month**.

- Remember to test each tank.
- Make sure you are properly testing the portion of the tank that routinely contains regulated substances.
- Make sure that the amount of product in your tank is sufficient to run the ATG leak test. The tank must contain a minimum amount of product to perform a valid leak detection test.

One source for determining that minimum amount is the performance certification for your leak detection equipment.

Double-walled tanks are not required to conduct a monthly leak test of the ATG. They are required to test the continuous interstitial monitoring system instead.



SYSTEM CHECK

Your ATG system is required to be tested on a monthly basis to ensure that they are operating according to the manufacturers specifications.

Read your owner's manual, run the appropriate tests, and see if your ATG system is set up and working properly.

- Most ATG systems have a "test" or "self-diagnosis" mode that may run these checks.



All ATG systems must be inspected, calibrated and tested annually by a qualified contractor to insure proper operation.



All records pertaining to the equipment manufacturer, warranties, maintenance requirements, repairs, and testing shall be maintained on-site for the life of the system or at an alternative location approved by the Director in writing.



Test your tanks more frequently in order to catch leaks sooner and reduce cleanup costs and problems.



Periodically have a qualified UST contractor, such as the vendor who installed your ATG, service all the ATG system components according to the manufacturer's service instructions.

- Tank probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least once annually.

Checklist for Automatic Tank Gauging

| Circle the UST numbers for tanks that use ATGs. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: Information | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | | Circle the appropriate answer | | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | | |
| 1. Do you use your ATG to check each tank for leaks/releases at least once every month? Don't forget that you also need to have sufficient product in each tank for a valid test. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Begin using your ATG to check each tank for releases at least once every Month. | | | | | | | | | | | |
| 2. Do you have records of your last 36 months of leak detection tests? Appendix J contains a sample record keeping form. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: You may be able to obtain historical records of leak tests from your ATG. Consult your owners manual to determine how to do this. Otherwise, begin keeping records of release detection testing. | | | | | | | | | | | |
| 3. Do you have records of your last 36 months of ATG system checks to make sure it was working properly? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Begin performing monthly system checks of your ATG system | | | | | | | | | | | |
| 4. Do you have records of the required annual calibration, inspection and test by a UST contractor for the last 3 years? Enter the date of the most recent test. Mm/dd/yy _____ | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact the person who did the work and obtain these records. | | | | | | | | | | | |

| Summary of Compliance with Leak Detection for ATGs | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTIONS: | YES | NO |
| 1. Are you in compliance with leak detection requirements for your ATG? To answer yes here you must be able to answer yes to all applicable questions above. | | |

4.7.2: Interstitial Monitoring for Double-Walled Tanks

Double-Walled Tanks have an additional barrier between the portion of an UST system that contains regulated substances and the outside environment. Secondary containment is provided by the outer tank wall of a double-walled system. The area between the inner and outer walls is called the interstitial space or annular space, and can be monitored to catch problems before regulated substances reach the environment. **Hazardous substance tanks must be double-walled with interstitial monitoring or you must obtain a waiver from RIDEM**

Interstitial monitoring systems must be designed, constructed and installed to detect a leak from any part of the tank that routinely contains product. For double-walled tanks, the test method must be able to detect a release through the inner wall of the double-walled tank.

Requirements and Best Management Practices for Double-Walled Tanks with Interstitial Monitoring



All leak monitoring devices shall not be shut off or deactivated at any time except for repair, and must be reported to RIDEM. All monitoring devices shall employ an audible alarm and a visual indicator, which shall be located as to be heard and seen by the owner/operator or other personnel during normal working hours.



SYSTEM CHECK

Test your interstitial monitoring system monthly to ensure it is operating effectively.

Read your owner's manual run the appropriate tests, and see if your interstitial monitoring system is set up and working properly.

Most interstitial monitoring systems have a "test" or "self diagnosis" mode that may run these checks.



Annually have a qualified UST contractor inspect, calibrate and test your interstitial monitoring system.



You should frequently test your interstitial monitoring system to make sure it is working properly.



Periodically have a qualified UST contractor, such as the vendor who installed your electronic interstitial monitoring system, service all the system components according to the manufacturer's service instructions.



Testing more often than monthly can catch leaks sooner and reduce cleanup costs and problems.

Checklist for Interstitial Monitoring of Double-Walled Tanks

| Circle the UST numbers for tanks that use interstitial monitoring. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| Circle the appropriate answer | | | | | | | | | | | |
| Yes (Y) or No (N) | | | | | | | | | | | |
| 1. Do you continuously use interstitial monitoring to check each tank for leaks/releases. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact RIDEM to determine how to return to compliance. | | | | | | | | | | | |
| 2. Do you have records of monthly interstitial monitoring system checks for the past 36 months? Appendix J contains a sample record keeping form. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Begin conducting monthly checks of your interstitial monitoring system. | | | | | | | | | | | |
| 3. Do you have all records of maintenance, and repair of your interstitial monitoring system conducted in the last 3 years? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact the person who did the work and obtain the records. | | | | | | | | | | | |
| 4. Do you have records of the required annual inspection, calibration and test by a UST contractor for the last 3 years? Enter the date of the most recent test. MM/DD/YY _____ | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Contact the person who did the testing and obtain the records | | | | | | | | | | | |

| Summary of Compliance with Leak Detection for Interstitial Monitoring for Your Tank | | |
|--|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are you in compliance with the tank leak detection requirements for interstitial monitoring? To answer yes here you must be able to answer yes to all questions above. | | |

4.7.3: Tank Tightness Testing

Requirements and Best Management Practices for Tank Tightness Testing



You must do tank tightness tests on all single walled tanks.



All inconclusive or failed tests must be reported to RI DEM within 2 hours of the test.



Tightness tests must be performed every five years after the installation of the ATG until the tank has been installed for 20 years; and every 2 years thereafter.



USTs upgraded with interior lining and/or cathodic protection do not have to have an ATG for 10 years after the upgrade. Tank tightness testing must be conducted annually during these 10 years. After 10 years an ATG is required and tank tightness testing must be performed every 5 years until the tank has been installed for 20 years, and every 2 years thereafter.



Tightness tests must be conducted by a trained tester licensed by RI DEM.

- Make sure that the method of tank tightness testing is approved by RI DEM.
Keep the results of all tightness tests for 3 years beyond the life of the facility.

Checklist for Tank Tightness Testing

| Circle the UST numbers for tanks that use tank tightness testing. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|---------|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | | Circle the appropriate answer | | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | | |
| <p>Tanks upgraded with cathodic protection and/or lining less than 10 years ago and have no ATG.</p> <p>Do you have results of tank tightness tests conducted every year for the last 5 years?</p> <p>Enter the date of your most recent test. MM/DD/YY _____</p> | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a tightness test conducted and keep the record. Or, if you had a tightness test conducted, but do not have the record, contact the tightness testing vendor to obtain a record.</p> | | | | | | | | | | | |
| <p>Tanks installed less than 20 years ago and have an ATG</p> <p>Do you have results of a tank tightness test conducted within the past 5 years?</p> <p>Enter the date of your most recent test. MM/DD/YY _____</p> | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a tightness test conducted and keep the record. Or, if you had a tightness test conducted, but do not have the record, contact the tightness testing vendor to obtain a record.</p> | | | | | | | | | | | |
| <p>Tanks installed more than 20 years ago and have an ATG.</p> <p>Do you have results of tank tightness tests conducted every 2 years after the tank had been installed for 20 years?</p> <p>Enter the date of your most recent test. MM/DD/YY _____</p> | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| <p>If no, then to return to compliance: Have a tightness test conducted and keep the record. Or, if you had a tightness test conducted, but do not have the record, contact the tightness testing vendor to obtain a record.</p> | | | | | | | | | | | |

| Summary of Compliance with Leak Detection for Tank Tightness Testing | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| <p>1. Are you in compliance with the tank leak detection requirements for tank tightness testing?</p> <p>To answer yes here you must be able to answer yes to one of the questions above.</p> | | |

4.7.4: Inventory Control

The Department has a booklet available for you to keep that explains how to conduct inventory reconciliation called "Doing Inventory Control Right For Underground Storage Tanks". Contact RI DEM if you wish to obtain a copy.

Requirements and Best Management Practices for Inventory Control



For Inventory Control you must do the following:

- Take inventory and dispenser readings and record the numbers at least once each day that product is added to or removed from your tank.
- Reconcile fuel deliveries with delivery receipts by taking inventory readings before and after each delivery.
- Reconcile all of your data at least once every 30 days. If the monthly reconciliation indicates a discrepancy of 1% or more of the flow-through plus 130 gallons, it must be reported to the Department.



Your equipment (for example: a stick or electronic monitoring device) must be capable of measuring to the nearest one-eighth inch and be able to measure the level of product over the full range of the tank's height.

Check your measuring stick periodically to make sure that you can read the markings and numbers and that the bottom of the stick is not worn.



You must measure the water in your tank to the nearest one-eighth inch at least once a month.

You can use a paste that changes color when it comes into contact with water.



You must ensure that your product dispensers are calibrated according to local standards or to an accuracy of 6 cubic inches for every 5 gallons of product withdrawn.

Look on your dispenser for a weights and measures sticker or contact your local department of weights and measures.

Checklist for Inventory Control

| Circle the UST numbers for tanks that use inventory control and tank tightness testing. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| Circle the appropriate answer | | | | | | | | | | | |
| Yes (Y) or No (N) | | | | | | | | | | | |
| 1. Do you perform inventory control properly? Appendix K contains a sample worksheet and record keeping form. This includes: <ol style="list-style-type: none"> 1. Taking inventory and dispenser readings at least once each day that product is added to or removed from your tank. 2. Reconciling fuel deliveries with delivery receipts by taking inventory readings before and after each delivery. 3. Reconciling all of your data at least once every 30 days. 4. Calculation of 1% flow- through plus 130 gallons. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5N |
| If no, then to return to compliance: Begin performing proper inventory control. | | | | | | | | | | | |
| 2. Do you have records of at least the last 36 months of inventory control (including water measurements)? A record keeping form is provided in Appendix J | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5N |
| If no, then to return to compliance: Begin keeping records of inventory control and water measurements. | | | | | | | | | | | |
| 3. Is the measuring equipment used capable of measuring to the nearest one-eighth inch over the entire height of the tank? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5N |
| If no, then to return to compliance: Get equipment (for example, a stick) that meets these requirements. | | | | | | | | | | | |
| 4. Do you measure the water in each of your tanks at least once every 30 days to the nearest one-eighth inch? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5N |
| If no, then to return to compliance: Begin taking water readings of each tank at least once every 30 days. | | | | | | | | | | | |

| Summary of Compliance with Leak Detection for Inventory Control | | |
|--|------------|-----------|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are you in compliance with the tank Leak detection requirements for inventory control? To answer yes here you must be able to answer yes to all applicable questions above. | | |

Summary of Compliance with Release Detection for Tanks

Make sure you read and complete the checklists in the appropriate release detection sections for all of your tanks before answering the questions below.

| Summary of Compliance with Release Detection for Tanks | | | | | | | | |
|--|------------------|------------------|--|--|--|--|--|--|
| ANSWER THE FOLLOWING QUESTION: | YES | NO | | | | | | |
| <p>1. Are all of your tanks in compliance with release detection requirements? To answer YES here, you must be able to answer yes to all applicable questions for each type of tank release detection at your facility. If you have a hazardous substance tank please read the information below this question</p> <p>List all tanks that don't meet Release Detection requirements.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black; width: 20%;"><u>Tank ID</u></th> <th style="text-align: left; border-bottom: 1px solid black; width: 80%;"><u>Substance</u></th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> <tr> <td style="border-bottom: 1px solid black;"> </td> <td style="border-bottom: 1px solid black;"> </td> </tr> </tbody> </table> | <u>Tank ID</u> | <u>Substance</u> | | | | | | |
| <u>Tank ID</u> | <u>Substance</u> | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| <p>If you answered no to either question, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B.</p> | | | | | | | | |

(Transcribe this answer to question __ of the Compliance Certification form)

If you have tanks that contain a hazardous substance listed on the CERCLA list of hazardous substances (an example would be a tank that contains antifreeze) you must meet one of the following for each of these tanks:

1. You must have a Double-Walled Tank with interstitial monitoring (see section 4.7.2)

Or

2. You must have a waiver from your State Agency.

Section 4.8: Leak Detection for Piping

If your UST contains fuel oil that is consumed on-site solely for heating purposes you are not required to have leak protection.



There are several types of product delivery systems for piping that could be used with underground storage tanks. They are pressurized, suction, and gravity feed delivery systems. In addition, piping could either be aboveground or underground. There are leak detection requirements for underground pressurized and suction piping. The leak detection requirements are different depending on the type of piping delivery system. **Don't include fill pipes as part of your piping.**

To determine requirements and BMPs for leak detection of your piping, do the following:

1. Identify the type(s) of product delivery piping you have at your facility. Check the appropriate boxes in the table on the next page.

Different piping runs at your facility may use different types of product delivery systems. Make sure to select the appropriate type of product delivery system for each piping run at your facility.

Note: If all piping associated with an UST is aboveground, then that piping has no requirements for leak detection.

2. For each type of piping you checked, go to the appropriate section and read and fill out the appropriate checklist(s) for piping release detection. You may need to go to more than one checklist.
3. Once you have completed the checklists for piping release detection, turn to the last page of this section and complete the checklist that summarizes your compliance with piping release detection.

Leak Detection requirements for your piping

For double-walled piping:

1. Continuous interstitial monitoring, and
2. Shear/crash/impact valve for pressurized system, or
3. Check valve for suction systems

For single-walled pressurized piping:

1. Annual tightness testing, and
2. Line leak Detector, and
3. Shear/crash/impact valve

For single-walled suction piping:

1. Tightness test upon installation then at 5, 8, 11, and 13 years and annually thereafter
2. Check valve under dispenser

| What Type(s) of Piping Do You Have at Your Facility? | | | | | | Go to these sections for information and compliance checklists |
|--|---|---|---|---|---|--|
| UST Number: | 1 | 2 | 3 | 4 | 5 | |
| Pressurized (with some piping underground) | | | | | | Section 4.8.1 |
| Suction (with some piping underground) | | | | | | Section 4.8.2 |
| Gravity (with some piping underground) | | | | | | No Requirements |
| No Underground Piping | | | | | | No Requirements |
| No Piping | | | | | | No Requirements |

If you know the type(s) of piping you have, skip the description information below and proceed as instructed in the table above. Otherwise, take the following steps to figure out what is at your facility:

- Read the descriptions below of the different types of product delivery systems for piping.
- Look through your old records to see if they match any of the names in the descriptions.
- Contact the contractor who installed your piping system.

Product Delivery System Descriptions

Pressurized product delivery pushes product from the tank to the dispenser through piping by using a submersible turbine pump (STP) located inside the tank. You should be able to tell if you have a pressurized piping system by looking for a STP head in a sump above the tank. These sumps are usually covered with a lid and may also have a sump cover under the lid.



Sample STP Head in a Sump on Top of a Tank



Sample STP Head in a Sump on Top of a Tank



Sample Lid and Sump Cover

Suction product delivery pulls product from the tank to the dispenser through the piping by using a suction pump located at the dispenser. You should be able to tell if you have suction piping by looking for a suction pump (you may see pulleys and belts) inside the dispenser. Also, there will not be a pump in a sump above the tank.

Gravity feed product delivery has no pump and relies on the downward slope of the piping to transport product from the tank to the dispenser. This type of piping system is not common for underground storage tanks with dispensers.



Example of a Suction Pump
Inside a Dispenser

4.8.1 - Leak Detection: Pressurized Piping



Each pressurized piping run must have an automatic line leak detector (LLD) installed. You must meet specific requirements for your LLDs. **See section 4.8.1.1 for information and checklists for LLDs.**



Along with a LLD, each pressurized piping must have one of the following:

Double-Walled Piping

- **Interstitial monitoring** - to use this method, your piping must be double-walled and you must be monitoring the interstitial space continuously for releases. If you have a **hazardous substance UST**, you must either use interstitial monitoring or have a waiver from RI DEM.

Single-Walled Piping

- **annual line tightness test** - this method is described in section 4.8.3. You must have a line tightness test conducted at least annually for pressurized piping. **See section 4.8.3 for information and checklists for line tightness testing.**

Contact RI DEM if you do not use one of these methods.



If you use interstitial monitoring (section 4.7.2), the requirements are the same for both tanks and piping. **In addition**, you must ensure the following for interstitial monitoring for piping:

- Probes are typically located in the piping collection sump areas for interstitial monitoring. These sumps must be tight and free of leaks for piping interstitial monitoring to operate correctly.
 - Piping should slope to the sump containing the monitoring probe.
 - Check to see that probes are located near the bottom of the sump so that they activate quickly when a release occurs.
 - Probes must be at least 1" below the lowest penetration fitting in the sump



Pressurized Piping must be equipped with an emergency shut off valve designed to close automatically in the event of impact or fire exposure. The automatic closing feature of the valve must be checked yearly by manually tripping the hold-open linkage. Records must be kept of this testing.

Checklist for Pressurized Piping Leak Detection

| Circle the UST numbers for pressurized piping. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Note: If you have an UST with suction piping, or no piping, circle N/A here for that UST. <p style="text-align: center;">QUESTIONS:</p> | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Do you have a LLD on each pressurized piping run? If you answer no here, skip question 2. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Have a contractor install a LLD for your piping. | | | | | | | | | | | |
| 2. Does your LLD meet the regulatory requirements? Read and fill out the checklist in section 4.8.1.1 before answering this question. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Have a contractor fix or replace your LLD so that it meets the requirements in section 4.8.1.1. | | | | | | | | | | | |
| 3. In addition to your LLD, what is the second method of leak detection you use for your pressurized piping? | | | | | | | | | | | |
| Use these abbreviations for this question: IM = interstitial monitoring (double-walled) LTT = line tightness testing (single-walled) | | | | | | | | | | | |
| 4. Do you meet the leak detection requirements for your second method of leak detection for your pressurized piping? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If you use: Piping Interstitial monitoring - to answer yes here, your piping must be double-walled, your sumps must be leak-free, the piping should slope toward sumps containing the probes, your probes should be located near the bottom of your sumps, and you must meet the interstitial monitoring requirements in section 4.7.2. Line tightness testing - to answer yes here, your piping must be single-walled, and you must meet the tightness testing requirements for pressurized piping. Fill out the checklist in section 4.8.3 to make this determination. | | | | | | | | | | | |
| If no, to return to compliance: Take action to meet all of the release detection requirements for the release detection method you are using or begin performing a method of release detection that meets the regulatory requirements. | | | | | | | | | | | |
| 5. Did you test the shear/crash/impact valve? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| Enter the date this test was conducted. MM/DD/YY _____ | | | | | | | | | | | |
| If no, to return to compliance: Take action to conduct the test. | | | | | | | | | | | |

| Summary of Leak Detection Compliance for Pressurized Piping | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTIONS: | YES | NO |
| 1. Is all of your pressurized piping in compliance with leak detection requirements? To answer yes here, you must be able to answer yes to all applicable questions above and identify the second method of release detection you are using in question 3. | | |

4.8.1.1 - Leak Detection: Automatic Line Leak Detectors (LLDs)

Information



Sample LLD

Automatic LLDs are devices installed in the piping run and are designed to detect a catastrophic release from pressurized piping. Typically, they are located on the submersible turbine pump (STP) head in the sump above your tank.

There are two types of automatic LLDs:

- Mechanical LLDs are mechanically operated pressure valves that test for piping leaks each time the pump is turned on.
- Electronic LLDs have an electronic detection element that connects to an electronic control panel (such as an ATG) and continuously monitors for piping releases.



Sample STP Head with LLD

Note: An electronic LLD may also be capable of conducting a line tightness test. Check with your RI DEM to see if this option applies to you.



Pressurized piping must have a LLD installed that can detect a release of 3 gallons per hour at a line pressure of 10 pounds per square inch within one hour.



When a leak is detected, automatic LLDs must either:

- shut off product flow; or
- restrict product flow; or
- trigger an audible or visual alarm.



You must have a test conducted on each LLD at least every year. The test must be performed according to the manufacturer's requirements and procedures by trained, qualified personnel.

- You must keep a records of this test for three years beyond the operational life of the facility.



You must maintain all records of maintenance, or repair of your LLD for a period of 3 years.



Frequently test your automatic LLDs according to the manufacturer's instructions to make sure they are working properly.



Make sure that your LLD is designed to operate with the type of fuel your UST stores. For example, some LLDs are designed to work with gasoline, while others are intended to work with diesel.

Checklist for Automatic Line Leak Detectors

| Circle the UST numbers for piping with a LLD. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Do you have a record indicating that your LLD has been tested within the last 3 years? Enter the date of your most recent test (mm/dd/yy). _____ | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Either find the record, obtain the record from the person who conducted the test or have a test conducted. If a test is conducted: 1. Make sure each LLD passes the test. 2. Keep records of the results for three years beyond the operational life of the facility. If a LLD fails a functionality test, have a trained person repair or replace the LLD. | | | | | | | | | | | |
| 2. Do you have all records of any maintenance, or repair of your LLD conducted in the last 12 months? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Contact the person who did the work and obtain these records. | | | | | | | | | | | |
| Summary of compliance for your LLDs | | | | | | | | | | | |
| Is your automatic LLD in compliance with leak detection requirements? To answer yes here, you must be able to answer yes to all applicable questions above. | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| Transcribe this answer to question 2 of section 4.8.1. | | | | | | | | | | | |

4.8.2 - Leak Detection: Suction Piping



If you have suction piping, you must use one of the following leak detection methods for each piping run.

Double-Walled Suction Piping

- **Interstitial monitoring** - If your piping is double-walled and you must be monitoring the interstitial space continuously for releases. If you have a **hazardous substance UST**, you must either use interstitial monitoring or have a waiver from RI DEM.

Single-Walled Suction Piping

- **annual line tightness test** - this method is described in section 4.8.3. You must have a line tightness test conducted at 5, 8, 11, and 13 years after installation and annually thereafter.

Contact RI DEM if you do not use one of these methods.



If you use interstitial monitoring (section 4.7.2), the requirements are the same for both tanks and piping. **In addition**, you must ensure the following for interstitial monitoring for piping:

- Probes are typically located in the piping collection sump areas for interstitial monitoring. These sumps must be tight and free of leaks for piping interstitial monitoring to operate correctly.
 - Piping should slope to the sump containing the monitoring probe.
 - Check to see that probes are located 1 inch below the lowest penetration fitting or entry boot so that they activate quickly when a release occurs.



Suction piping systems must be equipped with a check valve located underneath the dispensing unit.

Checklist for Suction Piping Leak Detection

| Circle the UST numbers for suction piping. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|---|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Note: If you have an UST with pressurized piping, or no piping circle N/A here for that UST. QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. What method of leak detection do you use for your suction piping? | | | | | | | | | | | |
| Use these abbreviations for this question: IM = interstitial monitoring (double-walled) LTT = line tightness testing (single-walled) | | | | | | | | | | | |
| 2. Do you meet the leak detection requirements for your suction piping? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If you use: Piping Interstitial monitoring - to answer yes here, your sumps must be leak-free, the piping needs to slope toward sumps containing the probes, your probes must be located 1 inch below the lowest fitting, and you must meet the interstitial monitoring requirements in section 4.7.2. Line tightness testing - to answer yes here, you must meet the tightness testing requirements for suction piping. Fill out the checklist in section 4.8.3 to make this determination. | | | | | | | | | | | |
| If no, to return to compliance: Begin performing a method of release detection that meets the requirements for that release detection method. | | | | | | | | | | | |
| 4. Do you have a check valve under the dispensing unit? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no then return to compliance: Contact RI DEM to determine how you may return to compliance. | | | | | | | | | | | |

| Summary of Leak Detection Compliance for Suction Piping | | |
|---|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Is all of your suction piping in compliance with leak detection requirements? To answer yes here you must be able to answer yes to question 1 above or identify your method of release detection in question 2 and answer yes to question 3 above. | | |

4.8.3 - Leak Detection: Line Tightness Testing



A periodic line tightness test must be used to meet leak detection requirements for your single-walled piping. Line tightness testing may be performed by either a trained tester or by using a permanently installed electronic system. Line tightness testing must be able to detect a 0.1 gallon per hour leak rate at 1.5 times the operating pressure of the piping.



You must keep results of tightness testing for three years beyond the operational life of the facility.

- For pressurized piping, testing is required every 12 months.
- For suction piping, testing is required at 5, 8, 11, and 13 years after installation and yearly thereafter.



If you use a permanently installed electronic system, it must be inspected, calibrated, and tested on a yearly basis. You must keep records of these annual tests.



Tightness tests must be conducted by a trained tester licensed by RI DEM.

- Make sure that the method of tightness testing is approved by RI DEM. Keep the results of all tightness tests for 3 years beyond the life of the facility.



If you use a permanently installed electronic system, periodically have a trained contractor such as the vendor who installed the system, service that system according to the manufacturer's instructions.

Checklist for Line Tightness Testing

| | | | | | | | | | | | |
|---|----------------|--------------------------------------|----------|----------|----------|----------|--------|--------|--------|--------|--------|
| Circle the UST numbers for piping that uses line tightness testing. | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | | Circle the appropriate answer | | | | | | | | | |
| | | Yes (Y) or No (N) | | | | | | | | | |
| 1a. Do you have a record of a passing test for your most recent line tightness test? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Either find the record, obtain the record from the person who conducted the test or have a test conducted. Enter the date of most recent test. MM/DD/YY _____ | | | | | | | | | | | |
| 1b. Was your last tightness test conducted less than 1 year ago for pressurized piping or 5, 8, 11, 13 years after installation and annually thereafter for suction piping? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, to return to compliance: Have a tightness test conducted: 1. Make sure each piping run passes the test. 2. Keep records of tightness testing. If a tightness test ever fails, your piping may be leaking. Report the problem to RI DEM and take action to fix the problem. | | | | | | | | | | | |
| 2. What type of piping do you have for your tanks? | | 1 | 2 | 3 | 4 | 5 | | | | | |
| Use these abbreviations for this question: PR = Pressurized piping SU = Suction piping | | | | | | | | | | | |

| Summary of Compliance for Line Tightness Testing | | | | | | | | | | | |
|---|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Is your line tightness test in compliance with leak detection requirements? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| To answer yes here, you must meet one of the following criteria: answer yes to questions 1a, 1b. | | | | | | | | | | | |
| Transcribe this answer to question 3 of section 4.8.1 for pressurized piping or section 4.8.2 for suction piping. | | | | | | | | | | | |

Summary of Compliance with Piping Leak Detection

Make sure you read and complete the checklists in the appropriate piping leak detection sections for all of your underground piping before answering the question below.

| Summary of Compliance with Piping Leak Detection | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Does all of your underground piping meet Leak detection requirements? To answer YES here, you must be able to answer yes to all applicable questions for each type of piping at your facility. If you have piping that contains a hazardous substance read the information below this question. | | |
| If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B. | | |

(Transcribe this answer to question __ of the Compliance Certification form)

If you have piping that contains a hazardous substance listed on the CERCLA list of hazardous substances (an example would be a tank that contains antifreeze) you must meet one of the following for each of these piping runs:

1. You must have secondarily contained piping with interstitial monitoring. This is necessary for both pressurized and suction piping.

Or

2. You must have a waiver from RI DEM.

Section 4.9: What to Do for Suspected or Confirmed Releases



Personnel at your facility should be fully prepared to respond to releases before they may occur. In addition, everyone needs to know what to do when release detection methods indicate a suspected or confirmed release.



You must respond to and report suspected or confirmed releases when they occur. If you think you may have a release or your release detection indicates a suspected release, you need to take the following steps, as appropriate. **Never ignore leak detection alarms or failed leak detection tests. Treat them as suspected leaks.**

Step 1. Stop The Release

- Take immediate action to prevent the release of more product.
- Turn off the power to the dispenser and “bag” the nozzle.
- Make sure you know where your emergency shutoff switch is located.
- If necessary, empty the tank, without further contaminating the site. You may need the assistance of your supplier or distributor.

Step 2. Contain The Spill Or Overfill

Contain, absorb, and clean up any surface spills or overfills. You should keep enough absorbent material at your facility to contain a spill or overfill of petroleum products until emergency response personnel can respond to the incident.

The suggested supplies include, but are not limited to, the following:

- Containment devices, such as containment booms, dikes, and pillows.
- Absorbent material, such as kitty litter, chopped corn cob, sand, and sawdust. Be sure you properly dispose of used absorbent materials.
- Mats or other material capable of keeping spill or overfill out of nearby storm drains.
- Spark-free flash light.
- Spark-free shovel.
- Buckets.
- Reels of “caution tape,” traffic cones, and warning signs.
- Personal protective gear.

Step 3. Identify Any Hazards

Identify any fire, explosion or vapor hazards and take action to neutralize these hazards.

Step 4. Call For Help

Contact your local fire or emergency response authority. Make sure you have these crucial telephone numbers prominently posted where you and your employees can easily see them.

Step 5. Report To Authorities

All persons shall immediately report all confirmed and suspected leaks or releases from UST's to:

- The RI DEM, (401) 222-2797
- RI DEM 24 hour Emergency Response Hotline (401) 222-3070
- The appropriate local fire official
- The local public water supplier, in the event a spill occurs in a public supply watershed or in a wellhead protection area for community water supply wells.



Keep a list of emergency contacts and make sure everyone at your UST facility is familiar with the list of contacts. **Appendix D contains a blank list for names and phone numbers of important contacts.** Fill out this information for your facility so that you will know who to call in case of an emergency. Remove this page from the manual, copy it, fill it out, and post it in a prominent place at your facility.

| Summary of Compliance with Suspected or Confirmed Releases | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTIONS: | YES | NO |
| 1. Do you appropriately respond to and report all suspected or confirmed releases? This includes responding to a suspected problem due to a failed release detection result. | | |
| If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B. | | |

(Transcribe this answer to question __ of the Compliance Certification form)

Section 4.11: Temporarily Closed USTs



USTs in temporary closure must meet certain requirements for leak detection, corrosion protection, and securing of all openings in the UST system.

Do you have at least one UST that is in temporary closure? Yes No (Circle one)
Typically, you as an owner or operator would have actively made a decision to place an UST in temporary closure. If you are not sure whether you have an UST that is in temporary closure contact RI DEM.

If you answered yes to this question, read this section and complete the checklist on the next page for each UST in temporary closure.

If you answered no to this question, skip section 4.11.



If your UST is not empty, it must continue to meet the leak detection requirements of an active UST. An “empty” tank, by definition, contains less than one inch of product.



All corrosion protection systems must remain operational on the tank and must continue to be monitored.



If an UST remains temporarily closed, you must do the following: leave vent lines open, but cap and secure all other lines, pumps, manways, and ancillary equipment.



You must respond to any releases from your temporarily closed UST system, just as you would from an UST system that you are currently using.



RI DEM must be notified in writing within 15 days of any temporary closure, which USTs have been put into temporary closure and the actions taken to satisfy the above listed requirements.

Checklist for USTs in Temporary Closure

| Circle the UST numbers for tanks in temporary closure | UST # = | 1 | 2 | 3 | 4 | 5 | | | | | |
|--|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| QUESTIONS: | | N/A | N/A | N/A | N/A | N/A | | | | | |
| | Circle the appropriate answer | | | | | | | | | | |
| | Yes (Y) or No (N) | | | | | | | | | | |
| 1. Does your temporarily closed UST contain less than one inch of product? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| Answer all of the questions for each UST that you answered NO to this question. You may skip question 2 for each UST that you answered YES to this question. | | | | | | | | | | | |
| 2. Does your temporarily closed UST meet all the appropriate requirements for release detection in section 4.7? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Either empty the UST, or ensure that your UST meets the appropriate leak detection requirements. | | | | | | | | | | | |
| 3. Does your temporarily closed UST meet the requirements for corrosion protection described in section 4.4? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Ensure that your UST meets the appropriate corrosion protection requirements. | | | | | | | | | | | |
| 4. Are the vent lines open on your temporarily closed UST? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Open the vent lines. | | | | | | | | | | | |
| 5. For an UST in temporary closure, have you capped all lines (except vent lines), pumps, manways, and ancillary equipment on that UST? | | 1 Y | 1 N | 2 Y | 2 N | 3 Y | 3 N | 4 Y | 4 N | 5 Y | 5 N |
| If no, then to return to compliance: Cap all lines (except vent lines), pumps, manways, and ancillary equipment on the temporarily closed UST. | | | | | | | | | | | |

| Summary of Compliance for Temporary Closure | | |
|--|-----|----|
| ANSWER THE FOLLOWING QUESTION: | YES | NO |
| 1. Are all of your USTs currently in temporary closure in compliance? To answer yes here, you must be able to answer yes to all applicable questions from 2-5 above. If you answered no, fill out a return to compliance plan and submit it with your certification of compliance. A return to compliance plan can be found in Appendix B. | | |

(Transcribe this answer to question ___ of the Compliance Certification form)

Section 4.12: Keep Your State Agency Informed of UST System Changes



Before commencing construction of a new UST system, replacement UST system, or modification to an existing UST system, you are required to receive written approval from RI DEM.



You must notify RI DEM and submit a revised registration form anytime there is a change in any of your UST registration information. (Appendix M contains the UST registration form). If you are not sure who to notify, contact RI DEM at (401) 222-2797.

Examples of changes for which you should notify RI DEM include but are not limited to:

- change in property owner
- change in tank owner
- change in tank operator
- change in tank or tank equipment
- change in tank contents
- change in piping or piping equipment



You must notify the RI DEM at least 30 days in advance of any transfer of ownership of tanks or property by submitting a completed Transfer of Certification of Registration that can be found in Appendix N.

Have you had any changes in information required on your UST registration in the past year? Yes No (Circle one)

If you answered yes to this question complete the checklist on the next page.

If you answered no to this question you may skip section 4.12.

Checklist for Requirements for USTs

Summary of Compliance with Notification for USTs

| ANSWER THE FOLLOWING QUESTION: | YES | NO |
|--|------------|-----------|
| 1. Did you submit a updated Registration form to RI DEM for all registration information that changed in the past year? | | |
| If no, then to return to compliance: Submit a revised registration form as soon as possible. | | |
| | YES | NO |
| 2. If ownership of tanks or property transfered in the past year, did you submit the Transfer of Certification of Registration? | | |
| If no, then to return to compliance: Submit a completed Transfer of Certification of Registration form. | | |

Appendix A: Non-Applicability Statement

Underground Storage Tank Environmental Results Program

Instructions:

Complete Chapter 1 of the UST ERP workbook to determine if your facility does not apply to the UST ERP. Complete this form **only** if you are not eligible for the UST ERP, which means that **all** of your USTs are excluded. If any of your USTs are regulated then you are included in the UST ERP and you must fill out a Compliance Certification. Please save a copy of this statement for your records. If you have any questions, please contact RI DEM.

Facility Information:

| | | |
|--|-----------------------|---------------------|
| _____ Facility Name | | |
| _____ Facility Street Address | | _____ City/Town |
| _____ Zip Code | _____ Phone Number | _____ Fax Number |
| _____ Contact Person | | _____ Title |
| _____ Number of USTs at your facility | | |

This facility is not eligible for the UST ERP Self-Certification for the following reason(s):
[Check all that apply]

- USTs at this facility are deferred from all requirements except for release response and corrective action requirements. **Make sure to read Chapter 1 of the workbook because there are certain requirements you must meet if your tank was installed after 1988.**
- Indicate on the lines below the reason for deferral and number of USTs that are deferred for this reason.
(example: wastewater treatment tank system, 2 USTs)

USTs at this facility are not regulated.

- Indicate on the lines below the reason why the USTs are not regulated and number of USTs that are not regulated.
(example: septic tank, 1 UST)

There are no USTs at this facility.

- Indicate the type of facility on the lines below.

Note: Exclusion from the UST ERP does not relieve you of your responsibility to comply with the environmental requirements.

Signature

Date

Appendix B: Return to Compliance Plan

Underground Storage Tank Environmental Results Program

Complete a separate Return to Compliance plan for **EACH** compliance question/answer that requires one. (Attach to Certification Checklist and return with entire package.)

Only submit a Return-to-Compliance Plan for violations that you were unable to correct **BEFORE** certifying.

Completing this form does not relieve the facility of its affirmative responsibility to operate in compliance with applicable regulations. Failure to operate in full compliance with the applicable regulations may result in enforcement actions that include fines or penalties.

Facility Contact Information

Current Facility Name

Facility Street Address

City

State

Zip Code

Return-to-Compliance Information

1. What is the Compliance Question number for which you are reporting noncompliance? _____.
2. How many USTs at your facility does the non-compliance apply to? _____.
3. Which USTs (please list the UST numbers consistent with the numbers you used in the certification) are not in compliance? _____
4. What is the specific violation (reference the workbook section number in which the requirement is explained and a description of the requirement)?
 - a) Workbook section number: _____
 - b) Brief description of the requirement:

5. What action will you take to return to compliance?

6. Return to compliance date: _____ (month/day/year)
(If possible this should be within a 90 day period)

Appendix C: For More Information

This section identifies UST program contacts and other resources that can help answer your questions and provide you with information about good UST management.

State Regulatory Agency Information

RI DEM
Office of Waste Management
235 Promenade Street
Providence, RI 02908
(401) 222-2797

WEB SITE: www.state.ri.us/dem

Internet Resources

Government Links

- U.S. Environmental Protection Agency's Office of Underground Storage Tanks Home Page: <http://www.epa.gov/oust>. To go directly to the compliance assistance section of the Home page go to: <http://www.epa.gov/swerust1/cmplastc/index.htm>. To go directly to EPA's listing of publications, go to: <http://www.epa.gov/swerust1/pubs/index.htm>.

Professional And Trade Association Links

- American Petroleum Institute (API): <http://www.api.org/>
- American Society of Testing and Materials (ASTM): <http://www.astm.org/index.html>
- Fiberglass Tank and Pipe Institute (FTPI): <http://www.fiberglasstankandpipe.com>
- NACE International - The Corrosion Society: <http://www.nace.org/>
- National Fire Protection Association (NFPA) : <http://www.nfpa.org>
- Petroleum Equipment Institute (PEI): <http://www.pei.org>
- Steel Tank Institute (STI): <http://www.steeltank.com/>
- Underwriters Laboratories (UL): <http://www.ul.com>

Free Informative Publications Available

The publications listed on the next pages are free and available from the U.S. Environmental Protection Agency (EPA). You can access these publications via EPA's website or you can call, write to, or fax EPA. You can download, read, or order documents from <http://www.epa.gov/swerust1/pubs/index.htm>. To order free copies or ask questions, call EPA's **toll-free** RCRA/Superfund Hotline at 800-424-9346 or call EPA's publication distributor's **toll-free** number at 800-490-9198 or fax 513-489-8695. You can also write and ask for **free** publications by addressing your request to EPA's publication distributor: National Service Center for Environmental Publications (NSCEP),

Box 42419, Cincinnati, OH 45242. Fax-on-Demand allows you to call 202-651-2098 on your fax to access over 220 UST documents.

| Document | Description |
|---|--|
| General Information about USTs and your requirements | |
| Catalog Of EPA Materials On USTs (January 2000) | An annotated list of UST materials, including ordering information. Most of the leaflets, booklets, videos, and software items listed provide UST owners and operators with information to help them comply with federal UST requirements. |
| Operating and Maintaining Underground Storage Tank Systems: Practical Help and Checklists (August 2000) | Contains brief summaries of the federal UST requirements for operation and maintenance (O&M), as well as practical help that goes beyond the requirements. Checklists prompt the user to look closely at what kinds of equipment are in use and how to keep that equipment working properly over the lifetime of the UST system. The manual provides record keeping forms that also help the UST owner and operator keep equipment operating properly. |
| Musts For USTs: A Summary Of Federal Regulations For Underground Storage Tank Systems (July 1995) | Plain language summary of federal UST requirements for installation, release detection, spill, overfill, and corrosion protection, corrective action, closure, reporting and record keeping. |
| Underground Storage Tanks: Requirements And Options (June 1997) | Trifold leaflet alerts UST owners and operators who are "nonmarketers" (who do not sell stored petroleum) of their responsibilities and choices for complying with Federal UST regulations. |
| Leak Detection Information | |
| Straight Talk On Tanks: Leak Detection Methods For Petroleum Underground Storage Tanks (September 1997) | Explains federal regulatory requirements for leak detection and briefly describes allowable leak detection methods. |
| Automatic Tank Gauging Systems for Release Detection: Reference Manual for Underground Storage Tank Inspectors (August 2000) | Contains detailed information on automatic tank gauging (ATG) systems, including information on various types of ATGs, information on certified detectable leak rate/threshold, test period duration, product applicability, calibration requirements, restrictions on the use of the device, vendor contact information, printing and interpreting reports, sample reports, and so on. |
| Getting The Most Out Of Your Automatic Tank Gauging System (March 1998) | Trifold leaflet provides UST owners and operators with a basic checklist they can use to make sure their automatic tank gauging systems work effectively and provide compliance with federal leak detection requirements. |

| Document | Description |
|---|--|
| Doing Inventory Control Right: For Underground Storage Tanks (November 1993) | Booklet describes how owners and operators of USTs can use inventory control and periodic tightness testing to temporarily meet federal leak detection requirements. Contains record keeping forms. |
| Manual Tank Gauging: For Small Underground Storage Tanks (November 1993) | Booklet provides simple, step-by-step directions for conducting manual tank gauging for tanks 2,000 gallons or smaller. Contains record keeping forms. |
| List Of Leak Detection Evaluations For UST Systems, 9th Edition (November 2001) | A summary of specifications, based on third-party certifications, for over 275 systems that detect leaks from USTs and their piping. Each summary provides information on such items as certified detectable leak rate/threshold, test period duration, product applicability, calibration requirements, restrictions on the use of the device, and so on. |
| Introduction To Statistical Inventory Reconciliation: For Underground Storage Tanks (September 1995) | Booklet describes how Statistical Inventory Reconciliation (SIR) can meet federal leak detection requirements (12 pages). |
| Closing Underground Storage Tanks Information | |
| Closing Underground Storage Tanks: Brief Facts (July 1996) | Trifold leaflet presents "brief facts" on properly closing USTs in order to comply with federal closure requirements. |
| Financial Responsibility Information | |
| Dollars and Sense: Financial Responsibility Requirements for Underground Storage Tanks (July 1995) | Booklet summarizes the "financial responsibility" required of UST owners and operators. |
| List of Known Insurance Providers for Underground Storage Tanks (January 2000) | Booklet provides UST owners and operators with a list of insurance providers who may be able to help them comply with financial responsibility requirements by providing suitable insurance mechanisms. |
| Financial Responsibility for Underground Storage Tanks: A Reference Manual (January 2000) | This detailed, comprehensive manual provides UST inspectors with the restrictions, limitations, and requirements of each financial responsibility mechanism provided in the federal UST regulations. |

Appendix D: Sample Emergency Numbers List

Important Contact Information

| | Contact Name | Phone # |
|--------------------|--------------|---------|
| State UST Agency: | _____ | _____ |
| Local UST Agency: | _____ | _____ |
| Fire Department: | _____ | _____ |
| Ambulance: | _____ | _____ |
| Police Department: | _____ | _____ |
| Repair Contractor: | _____ | _____ |
| Other Contacts: | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |

Release Response Checklist

Stop the release: Take immediate action to prevent the release of more product. Turn off the power to the dispenser and “bag” the nozzle. Make sure you know where your emergency shutoff switch is located. Empty the tank, if necessary, without further contaminating the site.

Contain the spill or overfill: Contain, absorb, and clean up any surface releases. Identify any fire, explosion or vapor hazards and take action to neutralize these hazards.

Call for help and to report suspected or confirmed releases: Contact your local fire emergency response authority. Contact your State’s underground storage tank regulatory authority within 24 hours.

Appendix G: Sample Placards for Overfill Devices

DELIVERY PERSON — AVOID OVERFILLS

- An **overflow alarm** is used for overflow protection at this facility.
- Do not tamper with this alarm in any attempt to defeat its purpose.
- When the tank is **90% full or is within 1 minute of being overfilled**, the **overflow alarm sounds and/or a light comes on or flashes**.
- If you hear the alarm sound or see the light on or flashing,
STOP THE DELIVERY IMMEDIATELY!

DELIVERY PERSON — AVOID OVERFILLS

- A **ball float valve** is used for overflow protection at this facility.
- Do not tamper with this device in any attempt to defeat its purpose.
- When the tank is **90% full**, or **30 minutes prior to when the product would overflow the tank**, the ball float will activate and the flow rate of the delivery will decrease noticeably.
- **When you notice a decrease in flow rate,
STOP THE DELIVERY IMMEDIATELY!**

DELIVERY PERSON — AVOID OVERFILLS

- An **automatic shutoff device** is used for overfill protection at this facility.
- Do not tamper with this device in any attempt to defeat its purpose.
- When the tank is **95% full or before the fittings on top of the tank are exposed to fuel**, the device will activate and slow down, and then stop, the delivery before the tank is overfilled.
- **When the automatic shutoff device activates,
STOP THE DELIVERY IMMEDIATELY!**

Appendix H: Cathodic Protection Testing Form

(for use by a qualified cathodic protection tester)

TEST DATE: ___/___/___ FACILITY NAME/ID: _____

NOTE: Provide site sketch as directed on the back of this page.

Cathodic Protection (CP) Tester Information:

Name: _____ Phone Number: _____

Address: _____

Testing must be conducted by a qualified CP tester. Indicate your qualifications as a CP tester:

Identify which of the following testing situations applies:

Test required within 6 months of installation of CP system (installation date was ___/___/___)

Test required at least every 3 years after installation test noted above

Test required within 6 months of any repair activity – note repair activity and date below:

Indicate which industry standard you used to determine that the Cathodic Protection test criteria are adequate: _____

| Cathodic Protection Test Method Used (check one) | |
|---|--|
| | 100 mV Cathodic Polarization Test |
| | -850 mV Test (Circle 1 or 2 below) 1) Polarized Potential (“instant off”) 2) Potential with CP Applied, IR Drop Considered Note: All readings taken must meet the -850 mV criteria to pass |
| | Other Accepted Method (please describe): |

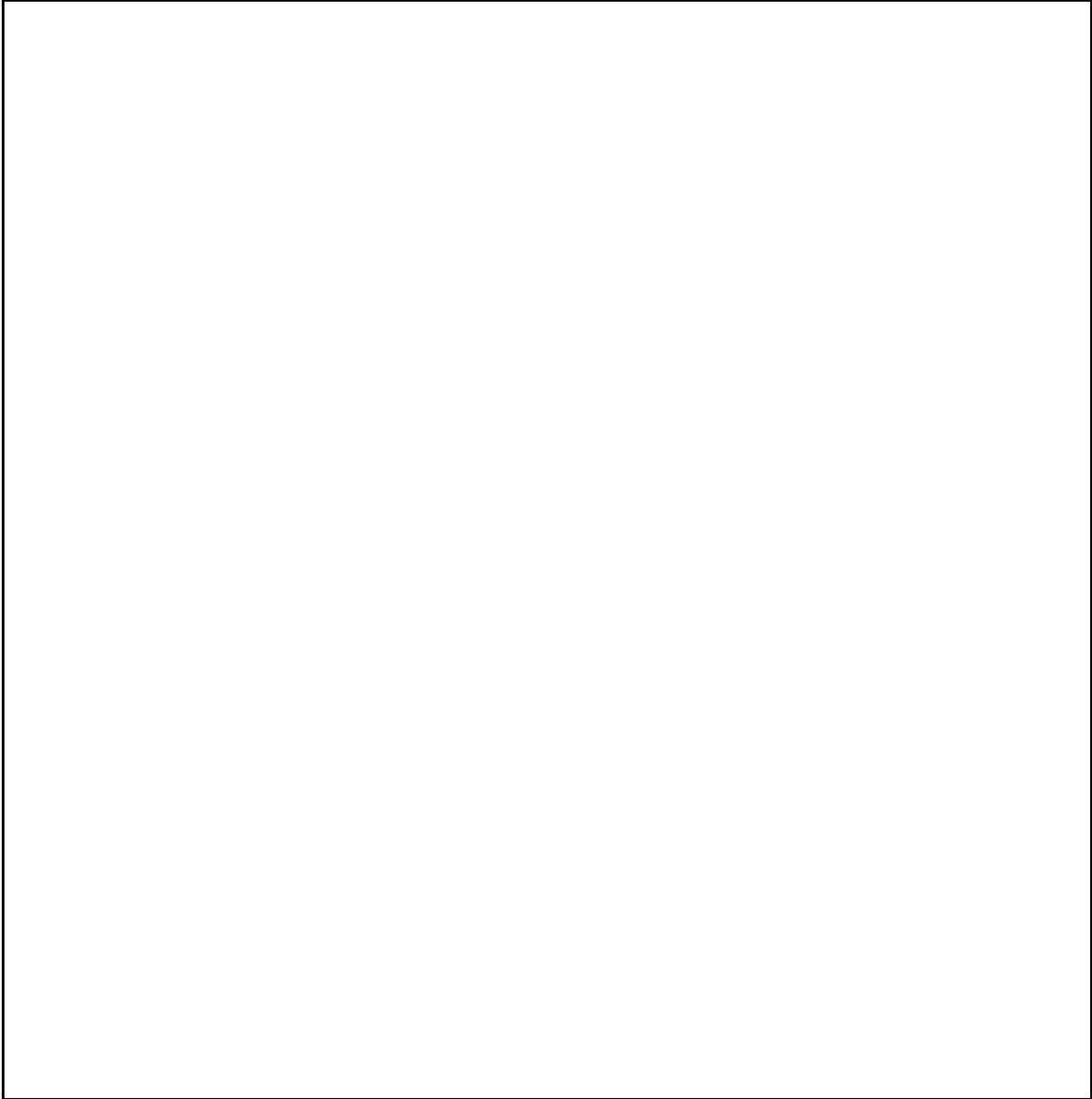
Is the Cathodic Protection System working properly? Yes No (circle one)

My signature below affirms that I have sufficient education and experience to be a cathodic protection tester; I am competent to perform the tests indicated above; and that the results on this form are a complete and truthful record of all testing at this location on the date shown.

CP Tester Signature: _____ Date: _____

Site Sketch: Provide a rough sketch of the tanks and piping, the location of each CP test, and each voltage value obtained (use space below or attach separate drawing). Voltage readings through concrete or asphalt do not provide accurate readings and are

not acceptable. Perform sufficient testing to evaluate the entire UST system.



If CP System fails a test, you must have a corrosion expert fix the system. If your CP system does not meet the requirements for cathodic protection, you must have a **corrosion expert** investigate and fix the problem. A corrosion expert has additional training, skills, and certification beyond the corrosion tester who filled out the bulk of this form. A corrosion expert must be 1) accredited/certified by NACE International, the Corrosion Society, as a corrosion specialist or cathodic protection specialist, or 2) a registered professional engineer with certification or licensing in corrosion control. As long as you have the UST, be sure you keep a record that clearly documents what the corrosion expert did to fix your CP system.

Appendix K: Sample Daily Inventory Worksheet

FACILITY NAME: _____

YOUR NAME: _____

DATE: _____

| | | | | | |
|--|--|--|--|--|--|
| TANK IDENTIFICATION | | | | | |
| Type of Fuel | | | | | |
| Tank Size in Gallons | | | | | |
| END STICK INCHES | | | | | |
| AMOUNT PUMPED | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| Totalizer Reading | | | | | |
| TODAY'S SUM OF TOTALIZERS | | | | | |
| Previous Day's Sum of Totalizers | | | | | |
| AMOUNT PUMPED TODAY | | | | | |
| DELIVERY RECORD | | | | | |
| Inches of Fuel Before Delivery | | | | | |
| Gallons of Fuel Before Delivery <small>(from tank chart)</small> | | | | | |
| Inches of Fuel After Delivery | | | | | |
| Gallons of Fuel After Delivery <small>(from tank chart)</small> | | | | | |
| GALLONS DELIVERED (STICK) <small>[Gallons "After" Gallons "Before"]</small> | | | | | |
| GROSS GALLONS DELIVERED (RECEIPT) | | | | | |

Sample Monthly Inventory Record

MONTH/YEAR : _____ / _____

TANK IDENTIFICATION & TYPE OF FUEL: _____

FACILITY NAME: _____

DATE OF WATER CHECK: _____ LEVEL OF WATER (INCHES): _____

| DATE | START STICK INVENTORY (GALLONS) | GALLONS DELIVERED | GALLONS PUMPED | BOOK INVENTORY (GALLONS) | END STICK INVENTORY | | DAILY OVER (+) OR SHORT () ["End" "Book"] | INITIALS |
|------|---------------------------------|-------------------|----------------|--------------------------|---------------------|-----------|--|----------|
| | | | | | (INCHES) | (GALLONS) | | |
| 1 | (+) | (-) | (=) | | | | | |
| 2 | (+) | (-) | (=) | | | | | |
| 3 | (+) | (-) | (=) | | | | | |
| 4 | (+) | (-) | (=) | | | | | |
| 5 | (+) | (-) | (=) | | | | | |
| 6 | (+) | (-) | (=) | | | | | |
| 7 | (+) | (-) | (=) | | | | | |
| 8 | (+) | (-) | (=) | | | | | |
| 9 | (+) | (-) | (=) | | | | | |
| 7 | (+) | (-) | (=) | | | | | |
| 8 | (+) | (-) | (=) | | | | | |
| 9 | (+) | (-) | (=) | | | | | |
| 10 | (+) | (-) | (=) | | | | | |
| 11 | (+) | (-) | (=) | | | | | |
| 12 | (+) | (-) | (=) | | | | | |
| 13 | (+) | (-) | (=) | | | | | |
| 14 | (+) | (-) | (=) | | | | | |
| 15 | (+) | (-) | (=) | | | | | |
| 16 | (+) | (-) | (=) | | | | | |
| 17 | (+) | (-) | (=) | | | | | |
| 18 | (+) | (-) | (=) | | | | | |
| 19 | (+) | (-) | (=) | | | | | |
| 20 | (+) | (-) | (=) | | | | | |
| 21 | (+) | (-) | (=) | | | | | |
| 22 | (+) | (-) | (=) | | | | | |
| 23 | (+) | (-) | (=) | | | | | |
| 24 | (+) | (-) | (=) | | | | | |
| 25 | (+) | (-) | (=) | | | | | |
| 26 | (+) | (-) | (=) | | | | | |
| 27 | (+) | (-) | (=) | | | | | |
| 28 | (+) | (-) | (=) | | | | | |
| 29 | (+) | (-) | (=) | | | | | |
| 30 | (+) | (-) | (=) | | | | | |
| 31 | (+) | (-) | (=) | | | | | |

TOTAL GALLONS PUMPED >

TOTAL GALLONS OVER OR SHORT >

LEAK CHECK:
Drop the last two digits from the **TOTAL GALLONS**

PUMPED number and enter here: _____ + 130 = _____ gallons

Compare these numbers

Is the "TOTAL GALLONS OVER OR SHORT" **LARGER** than "LEAK CHECK" result? **YES NO** (circle one)
If your answer is "YES" for 2 MONTHS IN A ROW, **notify RI DEM** immediately.

KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 3 YEARS



APPENDIX M: REGISTRATION FORM

STATE OF RHODE ISLAND UNDERGROUND STORAGE TANK REGISTRATION FORM FOR EXISTING TANKS, REPLACEMENT TANKS, AND INSTALLATION OF NEW TANKS

DEM USE ONLY

Registration #
Town Code
Sub Code
Data Entry Initials

CHECK ALL THAT APPLY

New Facility

Replacement Facility

Never Registered

Previously Registered Facility

Transfer of Ownership/New Owner

I. FACILITY INFORMATION

| | | | |
|-------------------|-----------------|------|------------|
| Name of Facility: | | | |
| Facility Address: | | | |
| City: | State: | Zip: | Phone: () |
| Contact Person: | Job Title: | | |
| Assessor's Plat: | Assessor's Lot: | | |

II. PROPERTY OWNER INFORMATION

| | | | |
|---|------------------------------------|--------------------------------|---|
| Name of Owner: | | | |
| Owner's Address: | | | |
| City: | State: | Zip: | Phone: () |
| Contact Person: | Job Title: | | |
| Ownership (please check one): | | | |
| <input type="checkbox"/> Corporate/Ltd. Partnership | <input type="checkbox"/> Municipal | <input type="checkbox"/> State | <input type="checkbox"/> Individual/Partnership |
| <input type="checkbox"/> Federal (GSA Facility ID# _____) | | | |
| <input type="checkbox"/> Other (please specify): _____ Date Ownership Acquired: | | | |
| Date Operation Commenced: | | | |

III. FACILITY OPERATOR INFORMATION (Same as Property Owner)

| | | | |
|--|------------------------------------|--------------------------------|---|
| Name of Operator: | | | |
| Operator's Address: | | | |
| City: | State: | Zip: | Phone: () |
| Contact Person: | Job Title: | | |
| Ownership (please check one): | | | |
| <input type="checkbox"/> Corporate/Ltd. Partnership | <input type="checkbox"/> Municipal | <input type="checkbox"/> State | <input type="checkbox"/> Individual/Partnership |
| <input type="checkbox"/> Federal (GSA Facility ID# _____) | | | |
| <input type="checkbox"/> Other (please specify): _____ Date Operation Commenced: | | | |

IV. TANK OWNER INFORMATION (☐ Same as Property Owner ☐ Same as Facility Operator)

| | | | |
|---|------------------------------------|--------------------------------|---|
| Name of Tank Owner: | | | |
| Mailing Address: | | | |
| City: | State: | Zip: | Phone: () |
| Contact Person: | Job Title: | | |
| Ownership (please check one): | | | |
| <input type="checkbox"/> Corporate/Ltd. Partnership | <input type="checkbox"/> Municipal | <input type="checkbox"/> State | <input type="checkbox"/> Individual/Partnership |
| <input type="checkbox"/> Federal (GSA Facility ID# _____) | | | |
| <input type="checkbox"/> Other (please specify): _____ Date Ownership Acquired: | | | |

V. FACILITY CLASSIFICATION

| | | |
|---|--|---|
| <input type="checkbox"/> (A) Farm | <input type="checkbox"/> (ES) Education/State | <input type="checkbox"/> (ET) Education/Town |
| <input type="checkbox"/> (EP) Education/Private | <input type="checkbox"/> (P) Private Residence | <input type="checkbox"/> (M) Multiple Residence |
| <input type="checkbox"/> (C) Commercial | <input type="checkbox"/> (I) Industrial | <input type="checkbox"/> (G) Gasoline Station |
| <input type="checkbox"/> (S) State Government | <input type="checkbox"/> (F) Federal Government | <input type="checkbox"/> (T) City/Town Government |
| <input type="checkbox"/> (FD) Nonprofit Fire District | <input type="checkbox"/> (O) Other (please specify): | |

VI. REGULATORY INFORMATION

| | | |
|---|----------------------------------|--|
| Does the Facility have a drinking water well? If Yes , how far from the nearest tank? _____ft. | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Is the facility within 400 feet of any public water supply wells or reservoirs? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Is the facility within 200 feet of any facility served by a private well? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Is the facility in or adjacent to State-regulated freshwater wetlands (including, but not limited to, swamps, ponds, marshes, watercourses, or 100-year floodplain)? If YES , Application or Complaint Number (if available): | <input type="checkbox"/> Unknown | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Have any leaks or spills ever occurred at this facility? If Yes , an incident report must be attached to this application. | <input type="checkbox"/> Unknown | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| Are recovery wells installed around this facility? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Are groundwater monitorin wells installed around this facility? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Does the facility have financial responsibility? If Yes , Insurer: _____ Policy Number: | <input type="checkbox"/> YES | <input type="checkbox"/> NO |

VII. TANK & PIPING INFORMATION (If more than 5 tanks – copy pages 3 & 4 and complete for additional tanks)

| TANK | Tank No. 1 | Tank No. 2 | Tank No. 3 | Tank No. 4 | Tank No. 5 |
|--|-------------|-------------|-------------|-------------|-------------|
| Date of Installation (month/day/year) (If unknown, please enter 99) | ___/___/___ | ___/___/___ | ___/___/___ | ___/___/___ | ___/___/___ |
| Tank Capacity in Gallons | | | | | |
| Tank Status: E = In Use C = Permanently Closed T = Temporarily Closed A = Abandoned | | | | | |
| Material of Construction: | | | | | |
| (01) steel | oe | oe | oe | oe | oe |
| (04) fiberglass reinforced plastic | oe | oe | oe | oe | oe |
| (27) steel-fiberglass-reinforced plastic | oe | oe | oe | oe | oe |
| (20) double-wall steel | oe | oe | oe | oe | oe |
| (23) double-wall fiberglass (reinforced plastic) | oe | oe | oe | oe | oe |
| (31) alcohol resistant | oe | oe | oe | oe | oe |
| (06) concrete | oe | oe | oe | oe | oe |
| (99) unknown | oe | oe | oe | oe | oe |
| other (specify) | oe | oe | oe | oe | oe |
| External Corrosion Protection: | | | | | |
| (11) cathodic protection | oe | oe | oe | oe | oe |
| (15) asphalt/tar coated | oe | oe | oe | oe | oe |
| (97) fiberglass/plastic/epoxy coated | oe | oe | oe | oe | oe |
| (98) none | oe | oe | oe | oe | oe |
| (99) unknown | oe | oe | oe | oe | oe |
| other (specify) | oe | oe | oe | oe | oe |
| Internal Protection: | | | | | |
| (17) internal lining | oe | oe | oe | oe | oe |
| (18) wear plate | oe | oe | oe | oe | oe |
| (19) submerged fill tube | oe | oe | oe | oe | oe |
| (98) none | oe | oe | oe | oe | oe |
| (99) unknown | oe | oe | oe | oe | oe |
| other (specify) | oe | oe | oe | oe | oe |
| Piping: | | | | | |
| (R) pressurized | oe | oe | oe | oe | oe |
| (I) suction | oe | oe | oe | oe | oe |
| other (specify) | oe | oe | oe | oe | oe |
| Piping Construction: | | | | | |
| (28) equipped with secondary containment | oe | oe | oe | oe | oe |
| (01) bare steel | oe | oe | oe | oe | oe |
| (04) fiberglass-reinforced plastic | oe | oe | oe | oe | oe |
| (20) double wall steel | oe | oe | oe | oe | oe |
| (23) double wall fiberglass-reinforced plastic | oe | oe | oe | oe | oe |
| (29) flexible single wall | oe | oe | oe | oe | oe |
| (30) flexible double wall | oe | oe | oe | oe | oe |
| (31) alcohol resistant | oe | oe | oe | oe | oe |
| (32) cathodic protection | oe | oe | oe | oe | oe |
| (09) coated/wrapped | oe | oe | oe | oe | oe |
| (99) unknown | oe | oe | oe | oe | oe |
| other (specify) | oe | oe | oe | oe | oe |

| TANK | Tank No. 1 | Tank No. 2 | Tank No. 3 | Tank No. 4 | Tank No. 5 |
|---|------------|------------|------------|------------|------------|
| Monitoring & Leak Detection System: (Check all that apply) line leak detection (piping) sump monitoring (piping) continuous in-tank gauging system continuous interstitial space tank monitoring groundwater monitoring wells precision test (tank & piping) (provide copies) other (specify) | oe | oe | oe | oe | oe |
| Overfill Prevention Equipment: high-level alarm flow restriction float vent valve automatic shut-off valve other (specify) | oe | oe | oe | oe | oe |
| Spill Prevention Equipment: spill containment basin shear valve/impact valve (pressurized piping) check valve (suction piping) other (specify): | oe | oe | oe | oe | oe |
| Substance Stored or to be Stored (mark only one box): (02) heating oil (No. 2) - consumed on site (2C) heating oil (No. 2) - consumed off site (04) heating oil (No. 4) - consumed on site (4C) heating oil (No. 4) - consumed off site (05) heating oil (No. 5) - consumed on site (5C) heating oil (No. 5) - consumed off site (06) heating oil (No. 6) - consumed on site (6C) heating oil (No. 6) - consumed off site (1D) light diesel fuel (No. 1-D) (2D) medium diesel fuel (No. 2-D) (01) number 1 kerosene (UG) regular/midgrade unleaded gasoline (SU) super unleaded gasoline (GH) gasohol (alcohol-gasoline blend) (DS) diesel (AG) aviation gasoline (JA) jet A (WO) waste oil (MO) motor oil (MX) mixture (specify) hazardous material (specify) CERCLA number: CAS number: (98) empty/no contents (99) unknown other (specify) | oe | oe | oe | oe | oe |

VIII. FACILITY SITE PLAN

EXISTING FACILITY

If a detailed plan is not available, this space is provided for a site plan drawing of all equipment locations for facilities **already in existence** (see requirements in Rule 6, Facility Registration and Notification, of the RI DEM Rules and Regulations For Underground Storage Facilities Used For Petroleum Products and Hazardous Materials).

NEW FACILITY

If a new facility, a set of detailed engineering plans certified by a Registered Professional Engineer and project specifications including operation and maintenance requirements is required with this application (see Rule 6, Facility Registration and Notification, of regulations). **All new facilities cannot use this space, separate installation plans must be submitted with this application.**

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

Date

Print Name and Title

Please specify:

Owner

Operator

Property Owner

UNDERGROUND STORAGE TANK (UST) REGISTRATION FORM

If you are a tank owner, operator or own property (owner/operator) where a tank is located, you are considered responsible for the UST located at the facility. Please fill out the attached form indicating all USTs located at the facility that are currently in use or that will be brought into use, and which contains or will contain a "regulated substance".

NEW AND REPLACEMENT TANKS AND/OR PRODUCT PIPING

An owner/operator must apply for a certificate of registration before commencing construction. Upon receipt and review of a complete application and installation plans, written approval will be issued.

No person shall commence construction of a new facility, replacement UST system, or a substantial modification to a UST system (including product piping replacement) until a written letter of approval has been issued authorizing the installation.

REGISTRATION FEE

Upon receipt of a completed application, the Department shall send an invoice for the payment of registration fees. Once the payment is received, a certificate of registration will be issued to the facility.

All owners/operators who hold valid certificates of registration shall pay an annual registration fee of \$75.00 for each underground storage tank so registered, except:

- Owners/operators of one, two or three family dwellings with tanks used for storing fuel for residential heating purposes (consumed solely on site);
- Owners/operators of farm tanks storing fuel for heating purposes (consumed solely on site);
- Federal, state and local governments;
- Nonprofit fire districts.

HOW TO COMPLETE REGISTRATION FORM

Print in ink or type all items. Assign each tank a number and maintain that number consistently throughout this form and site plan. In Section VII of this registration form, mark each box with an "x" if it is applicable to the associated tank.

PLEASE MAIL COMPLETED REGISTRATION FORMS TO:

Department of Environmental Management
Division of Waste Management
Underground Storage Tank Section
235 Promenade Street
Providence, Rhode Island 02908

If you have any questions, please call the Underground Storage Tank Section at (401) 222-2797 for assistance.

TRANSFER OF CERTIFICATION OF REGISTRATION

This document must be filled out by the new owner

This document must be notarized

FACILITY INFORMATION:

Facility Identification Number: _____

Facility Name: _____

Facility Address: _____

Telephone Number: _____

NEW OWNER(S) INFORMATION: TANK OWNER PROPERTY OWNER

New Owner(s) Name: _____

New Owner(s) Address: _____

Telephone Number: _____

Proposed Transfer Date: _____

CERTIFICATION:

Please put an "X" in the box that applies:

I have read the Original Application for a Certification of Registration and:

Believe, to the best of my knowledge, that there has been no substantial modification in the operations of the facility since the certificate was issued.

Believe, to the best of my knowledge, that there have been substantial modifications in the operation of the facility since the certification was issued; and I have included a description of all the changes that have occurred since the certificate was issued.

Owner's Signature: _____

TANK OWNER

PROPERTY OWNER

Notary Public Signature/Seal: _____

Checklist For Periodic Walk-Through Inspections



To assist in quickly detecting and preventing releases you should conduct basic walk-through inspections of your facility frequently to make sure that your essential equipment is working properly and that you have emergency response supplies on hand.

| Your initials in each box below the date of the inspection indicate that the device/ system was inspected and OK on that date. | Date of Inspection | | | | |
|--|--------------------|--|--|--|--|
| | | | | | |
| Release Detection System: Inspect for proper operation. | | | | | |
| Spill Buckets: Ensure spill buckets are clean and empty. | | | | | |
| Overfill Alarm: Inspect for proper operation. Can a delivery person hear or see the alarm when it alarms? | | | | | |
| Impressed Current System: Inspect for proper operation. | | | | | |
| Fill and Monitoring Ports: Inspect all fill/monitoring ports and other access points to make sure that the covers and caps are tightly sealed and locked. | | | | | |
| Spill and Overfill Response Supplies: Inventory and inspect the emergency spill response supplies. If the supplies are low, restock the supplies. Inspect supplies for deterioration and improper functioning. | | | | | |
| Dispenser Hoses, Nozzles, and Breakaways: Inspect for loose fittings, deterioration, obvious signs of leakage, and improper functioning. | | | | | |
| Dispenser and Dispenser Sumps: Open each dispenser and inspect all visible piping, fittings, and couplings for any signs of leakage. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump. | | | | | |
| Piping Sumps: Inspect all visible piping, fittings, and couplings for any signs of leakage. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump. | | | | | |

Reminder of Typical Ongoing Testing Requirements for UST Systems

| Release Detection - Activities may vary on the type(s) of release detection you use Keep the appropriate records of these tests! | | |
|---|---|--|
| Release Detection | Activity | Minimum Frequency |
| Automatic Tank Gauging, and Interstitial Monitoring | Release Detection Monitoring | Every 30 days |
| Inventory Control | Inventory Measurements | Daily |
| | Reconcile Daily Inventory Control Measurements | Every 30 days |
| | Check Tank for Water | Every 30 days |
| | Tank Tightness Test | Every 2 years |
| | Tank Tightness Test | Every year |
| | Tank Tightness Test | |
| Manual Tank Gauging | Testing | Weekly |
| | Reconcile Weekly Manual Tank Gauging Tests | Every 4 weeks |
| | Tank Tightness Test (if required) | Every year |
| Line Leak Detector | Test to Demonstrate Proper Function of Line Leak Detector | Every 12 months |
| Line Tightness Test | Line Tightness Test - for pressurized piping | Every 12 months |
| | Line Tightness Test - for suction piping | Every 3 years |
| For all Release Detection | Periodic Calibration and Maintenance of Release Detection Equipment | Per Manufacturer's Instructions |
| If you have Cathodic Protection - Activities vary depending on the type of cathodic protection | | |
| Cathodic Protection | Activity | Minimum Frequency |
| Impressed Current | Rectifier Inspection - keep records for at least 3 years beyond the operational life of the facility | Every 60 days |
| For both Impressed Current and Galvanic (Sacrificial) Anodes | Cathodic Protection Test - performed by a qualified cathodic protection tester - keep records for at least 3 years beyond the operational life of the facility | Within 6 months of Installation |
| | | Every 2 years for impressed current system Every 3 years for sacrificial anode system |
| | | Within 6 months of any repairs to your UST system |

If you have Internal Lining

| Internal Lining | Activity | Minimum Frequency |
|-----------------------------|---|---------------------------------|
| Internally Lined Steel Tank | Internally Lined Tank Inspection - not required if combined with cathodic protection and tank passed an assessment before adding cathodic protection - recommend keeping a record of the inspection | Within 10 years of installation |
| | | Every 5 years thereafter |